COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

NOTIFICATION

No. Conf. II/2941/02/2012 (1).   *17th December 2013.*

Read :—Not No. Conf. II/2941/02/2012 (1) dated 31-10-2012.

In exercise of the powers conferred by section 24(ii) read with section 42(1) of the CUSAT Act 1986, the Academic Council at its meeting held on 5-7-2012, approved the following:

1. Revised Schemes of Examinations for MBA (Full-Time), MBA (Part-Time), MBA (International Business), MBA (Travel and Tourism); with effect from 2012 admissions.

2. To amend the Regulations for MBA (Full-Time) course conducted Recognized Institutions by incorporating the clause "The minimum marks required for the internal assessment for MBA Programmes offered by the Recognized Institutions of CUSAT shall be 50% of the 40 marks allocated for Internal assessment.

    In the case of External Examinations conducted by the University also the minimum mark shall be 50% of the 60 marks allocated for External Examination.

    For all other papers/examinations a minimum of 50% of marks shall be required for a pass in the Examination"; with effect from 5-7-2012, the date of meeting of the Academic Council.

The Syndicate at its meeting held on 24-8-2013 vide item No. 602.30 ratified the action taken by the Vice-Chancellor in having approved the above.

Cochin University P. O.,   (Sd.)
Kochi-682 022.   *Professor-in-charge of Registrar.*

SCHEME OF STUDY FOR MBA (FULL-TIME) PROGRAMME

Course Code	Paper	C/E	Credits	Internal Marks	U/E* Marks	Total Marks
(1)	(2)	(3)	(4)	(5)	(6)	(7)
First Semester						
SMS 2101	Management Concepts and Organizational Behaviour	C	3	50	50	100
SMS 2102	Quantitative Techniques	C	3	50	50	100
SMS 2103	Managerial Economics	C	3	50	50	100
SMS 2104	Business Communication	C	3	50	50	100
SMS 2105	Financial Accounting	C	3	50	50	100
SMS 2106	Business Environment	C	3	50	50	100
SMS 2107	Indian Ethos and Business Ethics	C	3	50	50	100
	Managerial Skill Development	C	Nil	3 hrs./week. Non credit		
	Semester Viva-Voce (Internal)**	C	Nil			

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Second Semester					
SMS 2201	Financial Management	C	3	50	50	100
SMS 2202	Marketing Management	C	3	50	50	100
SMS 2203	Operations Management	C	3	50	50	100
SMS 2204	Human Resource Management	C	3	50	50	100
SMS 2205	Management Accounting	C	3	50	50	100
SMS 2206	Research Methodology	C	3	50	50	100
SMS 2207	Business Law	C	3	50	50	100
SMS 2208	Information Technology for Managers	C	3	50	50	100
	Semester Viva-Voce (Internal)**.	C	Nil			
	Third Semester					
SMS 2301	Management Science	C	3	50	50	100
SMS 2302	Organisational Analysis and Processes	C	3	50	50	100
SMS 2303	Entrepreneurial Development	C	3	50	50	100
SMS 2304	International Finance	C	3	50	50	100
	Elective – 1	E	3	50	50	100
	Elective – 2	E	3	50	50	100
	Elective – 3	E	3	50	50	100
	Project Report based on Summer Internship***	C	Nil	0	0	0
	Semester Viva-Voce (Internal)	C	Nil			
	Fourth Semester					
SMS 2401	Business Policy and Strategic Management	C	3	50	50	100
SMS 2402	Environment Management	C	3	50	50	100
SMS 2403	Independent Research Study ****	C	3	0	100	100
	Elective – 4	E	3	50	50	100
	Elective – 5	E	3	50	50	100
	Elective – 6	E	3	50	50	100
	Comprehensive Viva-Voce with external examiners	C	3	0	100	100

* U/E—University/External Examination.

** The focus of the semester viva-voce will be subjects covered during the particular semester. The total marks allotted for the semester Viva voce will be equal to the number of theory papers in the semester multiplied by five. The marks secured by the candidate will be equally distributed across the papers and will be treated as given out of five from the internal marks for the respective papers in that semester. Viva-voce to be held at least one month before the University semester examination to enable finalisation of internal marks in time.

*** The Summer Internship Project to be done in a business unit for a period of 45 days during the summer break after the second semester examination under the guidance of a Teacher. The report on Summer Internship should contain industry analysis, organizational analysis and a problem analysis. A pass/successful completion of the Summer Internship is a must. It carries no marks in the mark list.

**** Each student should submit a Dissertation based on the research (the research study need not be necessarily attached to an organisation) under the supervision of a Teacher.

<div align="center">SCHEME OF STUDY FOR MBA (PART-TIME) PROGRAMME</div>

MBA (Part-Time) is a regular programme conducted in the evenings (3 hours) extended over three years and comprising six semesters. The programme is mainly intended to equip managers already employed in organisations for their career advancement and positions in General Management levels. A minimum three years managerial/executive experience and minimum of 50% marks in the qualifying degree to be insisted as eligibility criteria for admission. The Course details for each semester are shown below :

Course Code	Paper	C/E	Credits	Internal Marks	U/E* Marks	Total Marks
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	First Semester					
SMP 2101	Management Concepts and Organizational Behaviour	C	3	50	50	100
SMP 2102	Quantitative Techniques	C	3	50	50	100
SMP 2103	Managerial Economics	C	3	50	50	100
SMP 2104	Indian Ethos and Business Ethics	C	3	50	50	100
SMP 2105	Financial Accounting	C	3	50	50	100
	Second Semester					
SMP 2201	Business Environment	C	3	50	50	100
SMP 2202	Marketing Management	C	3	50	50	100
SMP 2203	Human Resource Management	C	3	50	50	100
SMP 2204	Management Accounting	C	3	50	50	100
SMP 2205	Financial Management	C	3	50	50	100

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Third Semester					
SMP 2301	Business Communication	C	3	50	50	100
SMP 2302	Management Science	C	3	50	50	100
SMP 2303	Organizational Analysis and Processes	C	3	50	50	100
SMP 2304	Information Technology for Managers	C	3	50	50	100
SMP 2305	International Finance	C	3	50	50	100
	Fourth Semester					
SMP 2401	Research Methodology	C	3	50	50	100
SMP 2402	Operations Management	C	3	50	50	100
SMP 2403	Business Law	C	3	50	50	100
SMP 2404	Environment Management	C	3	50	50	100
	Elective – 1	E	3	50	50	100
	Fifth Semester					
SMP 2501	Entrepreneurial Development	C	3	50	50	100
SMP	Elective – 2	E	3	50	50	100
SMP	Elective – 3	E	3	50	50	100
SMP	Elective – 4	E	3	50	50	100
	Project Report on summer internship **	C	Nil	0	0	0
	Sixth Semester					
SMP 2601	Business Policy and Strategic Management	C	3	50	50	100
SMP 2602	Independent Research Study	C	3	0	100	100
	Elective – 5	E	3	50	50	100
	Elective – 6	E	3	50	50	100
	Comprehensive Viva-Voce with external examiners ***	C	3	0	100	100

* U/E - University/External Examination.

** The Summer Internship project to be done in a business unit for a period of 45 days during the summer break after the second semester examination under the guidance of a Teacher. The report on Summer Internship should contain industry analysis, organizational analysis and a problem analysis. A pass/successful completion of the Summer Internship is a must. It carries no marks in the mark list.

*** Each student should submit a Dissertation based on the research (the research study need not be necessarily attached to an organisation) under the supervision of a Teacher.

SCHEME OF STUDY FOR MBA (INTERNATIONAL BUSINESS) PROGRAMME

Course Code	Paper	C/E	Credits	Internal Marks	U/E* Marks	Total Marks
(1)	(2)	(3)	(4)	(5)	(6)	(7)
First Semester						
SMI 2101	Management Concepts and Organizational Behaviour	C	3	50	50	100
SMI 2102	Quantitative Techniques	C	3	50	50	100
SMI 2103	Managerial Economics	C	3	50	50	100
SMI 2104	Business Communication	C	3	50	50	100
SMI 2105	Financial Accounting	C	3	50	50	100
SMI 2106	Business Environment	C	3	50	50	100
SMI 2107	Indian Ethos and Business Ethics	C	3	50	50	100
	Managerial Skill Development	C	Nil	3 hrs./week. Non credit		
	Semester Viva-Voce (Internal)**	C	Nil			
Second Semester						
SMI 2201	Financial Management	C	3	50	50	100
SMI 2202	Marketing Management	C	3	50	50	100
SMI 2203	Operations Management	C	3	50	50	100
SMI 2204	Human Resource Management	C	3	50	50	100
SMI 2205	Management Accounting	C	3	50	50	100
SMI 2206	Research Methodology	C	3	50	50	100
SMI 2207	Business Law	C	3	50	50	100
SMI 2208	Information Technology for Managers	C	3	50	50	100
	Semester Viva-Voce (Internal)**	C	Nil			
Third Semester						
SMI 2301	International Finance	C	3	50	50	100
SMI 2302	Management Science	C	3	50	50	100
SMI 2303	International Marketing	C	3	50	50	100
SMI 2304	Entrepreneurial Development	C	3	50	50	100
SMI 2305	Export and Import – Policies and Procedures	C	3	50	50	100
	Elective - 1	E	3	50	50	100
	Elective - 2	E	3	50	50	100
	Project Report based on Summer Internship***	C	Nil	0	0	0
	Semester Viva-Voce (Internal)	C	Nil			

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Fourth Semester					
SMI 2401	International Strategic Management	C	3	50	50	100
SMI 2402	Environment Management	C	3	50	50	100
SMI 2403	International Logistics Management	C	3	50	50	100
SMI 2404	Independent Research Study ****	C	3	0	100	100
	Elective – 3	E	3	50	50	100
	Elective – 4	E	3	50	50	100
	Comprehensive Viva-Voce with external examiners	C	3	0	100	100

* U/E - University/External Examination.

** The focus of the semester viva-voce will be subjects covered during the particular semester. The total marks allotted for the semester Viva voce will be equal to the number of theory papers in the semester multiplied by five. The marks secured by the candidate will be equally distributed across the papers and will be treated as given out of five from the internal marks for the respective papers in that semester. Viva-voce to be held at least one month before the University semester examination to enable finalisation of internal marks in time.

*** The Summer Internship project to be done in a business unit for a period of 45 days during the summer break after the second semester examination under the guidance of a Teacher. The report on Summer Internship should contain industry analysis, organizational analysis and a problem analysis. A pass/successful completion of the Summer Internship is a must. It carries no marks in the mark list.

**** Each student should submit a Dissertation based on the research (the research study need not be necessarily attached to an organisation) under the supervision of a Teacher.

Note:— All MBA (International Business) students are required to take at least two electives from the list of electives under International Business.

SCHEME OF STUDY FOR MBA (TRAVEL AND TOURISM) PROGRAMME

Course Code	Paper	C/E	Credits	Internal Marks	U/E* Marks	Total Marks
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	First Semester					
SMT 2101	Management Concepts and Organizational Behaviour	C	3	50	50	100
SMT 2102	Quantitative Techniques	C	3	50	50	100
SMT 2103	Managerial Economics	C	3	50	50	100
SMT 2104	Business Communication	C	3	50	50	100
SMT 2105	Financial Accounting	C	3	50	50	100
SMT 2106	Business Environment	C	3	50	50	100
SMT 2107	Indian Ethos and Business Ethics	C	3	50	50	100
	Managerial Skill Development	C	Nil	3 hrs./week. Non credit		
	Semester Viva-Voce (Internal)**	C	Nil			
	Second Semester					
SMT 2201	Financial Management	C	3	50	50	100
SMT 2202	Marketing Management	C	3	50	50	100
SMT 2203	Operations Management	C	3	50	50	100

(1)	(2)	(3)	(4)	(5)	(6)	(7)
SMT 2204	Human Resource Management	C	3	50	50	100
SMT 2205	Management Accounting	C	3	50	50	100
SMT 2206	Research Methodology	C	3	50	50	100
SMT 2207	Principles and Practices of Tourism	C	3	50	50	100
SMT 2208	Information Technology for Managers	C	3	50	50	100
	Semester Viva-Voce (Internal)**	C	Nil			
Third Semester						
SMT 2301	Global Tourism Geography	C	3	50	50	100
SMT 2302	Entrepreneurial Development	C	3	50	50	100
SMT 2303	International Business Law	C	3	50	50	100
SMT 2304	Hospitality and Resort Management	C	3	50	50	100
SMT 2305	Safety and Crisis Management	C	3	50	50	100
	Elective - 1	C	3	50	50	100
	Elective - 2	C	3	50	50	100
	Project Report based on Summer Internship***	C	Nil	0	0	0
	Semester Viva-Voce (Internal)**	C	Nil			
Fourth Semester						
SMT 2401	Business Policy and Strategic Management	C	3	50	50	100
SMT 2402	Environment Management	C	3	50	50	100
SMT 2403	Airline Management	C	3	50	50	100
SMT 2404	Destination Management	C	1 ½	25	25	50
	Tour Report and Viva Voce (Based on compulsory study tour)	C	1 ½	25	25	50
SMT 2405	Independent Research Study	C	3	0	100	100
	Elective - 3	C	3	50	50	100
	Comprehensive Viva-Voce with external examiners ****	C	3	0	100	100

    *   U/E—University/External Examination.

   ** The focus of the semester viva-voce will be subjects covered during the particular semester. The total marks allotted for the semester Viva voce will be equal to the number of theory papers in the semester multiplied by five. The marks secured by the candidate will be equally distributed across the papers and will be treated as given out of five from the internal marks for the respective papers in that semester. Viva-voce to be held at least one month before the University semester examination to enable finalisation of internal marks in time.

  *** The Summer Internship project to be done in a business unit for a period of 45 days during the summer break after the second semester examination under the guidance of a Teacher. The report on Summer Internship should contain industry analysis, organizational analysis and a problem analysis. A pass/successful completion of the Summer Internship is a must. It carries no marks in the mark list.

 **** Each student should submit a Dissertation based on the research (the research study need not be necessarily attached to an organisation) under the supervision of a Teacher.

Note:— All MBA (Travel and Tourism) students are required to take at least two electives from the list of electives under Travel and Tourism.

NOTIFICATION

No. Conf. II/2941/02/2012 (2).   *17th December 2013.*

Read :—Not. No. Conf. II/2941/02/2012 (2) dated 31-10-2012.

In exercise of the powers conferred by section 24 (ii) read with section 42(1) of the CUSAT Act 1986, the Academic Council at its meeting held on 5-7-2012 resolved to amend the Ph.D. Regulations 2010 by adding the following clause to the section related to eligibility for Ph.D. Admissions: "An Associate/Fellow member of the Institute of Chartered Accountants of India or an Associate/Fellow member of the Institute of Company Secretaries of India or an Associate/ Fellow of the Institute of Cost and works accountants of India, shall be eligible for registration for a Ph.D. under the Faculty of Social Sciences provided he/she has a basic Degree from a Recognized University and has a minimum of 55% marks or equivalent grade the Associateship/Fellow Examinations"; with effect from 5-7-2012 the date of meeting of the Academic Council.

The Syndicate at its meeting held on 24-8-2013 vide item No. 602.30 ratified the action taken by the Vice-Chancellor in having approved the above.

Cochin University P. O.,   (Sd.)
Kochi-682 022.   *Professor-in-charge of Registrar.*

NOTIFICATION

No. Conf. II/2941/02/2012 (3).   *17th December 2013.*

Read :—No. Conf. Not II/2941/02/2012 (3) dated 31-10-2012.

In exercise of the powers conferred by section 24(ii) read with section 42(1) of the CUSAT Act 1986, the Academic Council at its meeting held on 5-7-2012, approved the Eligibility Criteria for admission for M.Tech., Electronics with various specializations viz. VLSI and Embedded Systems, Signal Processing and Opto Electronics and Communication System as given below:

(i)   *M.Tech. in Electronics with Specialization in VLSI & Embedded Systems*:—Bachelors Degree with 60% marks or equivalent grade in Electronics and Communication Engineering, Electronics and Instrumentation Engineering Electronics and Biomedical Engineering Electrical and Electronics Engineering, Applied Electronics and Instrumentation Engineering and Electronics Engineering. Candidate with valid GATE score is eligible for 5% relaxation in marks or grade.

(ii) *M.Tech. in Electronics with Specialization in Signal Processing*:—Bachelors Degree with 60% marks or equivalent grade in Electronics and Communication Engineering, Electronics and Instrumentation Engineering, Electronics and Biomedical Engineering, Electrical and Electronics Engineering, Applied Electronics and Instrumentation Engineering, Electronics Engineering, Computer Science and Engineering and Information Technology and M.Sc. (Electronics). Candidate with valid GATE score is eligible for 5% relaxation in marks or grade.

(iii) *M.Tech. in Electronics with Specialization in Optoelectronics and Cómmunication Systems*:—Bachelors Degree with 60% marks or equivalent grade in Electronics and Communication Engineering, Electronics and Instrumentation Engineering, Electronics and Biomedical Engineering, Electrical and Electronics Engineering, Applied Electronics and Instrumentation Engineering and Electronics Engineering and M.Sc.(Electronics), M.Sc. (Photonics). Candidate with valid GATE score is eligible for 5% relaxation in marks or grade.

(iv) The Schemes of Examinations for M.Tech. Electronics and M.Sc. Electronics courses with effect from 2012 admission onwards, as in Appendix.

The Syndicate at its meeting held on 24-8-2013 vide item No. 602.30 ratified the action taken by the Vice-Chancellor in having approved the above.

Cochin University P. O.,   (Sd.)
Kochi-682 022.   *Professor-in-charge of Registrar.*

SCHEME OF EXAMINATION FOR M.TECH. (ELECTRONICS) W.E.F. 2012 ADMISSIONS

Course Code	Name of the Course	C/E	Credits
First Semester			
ELE 3101	Advanced Microprocessors and Systems	C	3
ELE 3102	Advanced Digital Signal Processing	C	3
ELE 3103	Digital Communication	C	3
ELE 3111	Digital System Design Using VHDL	E	3
ELE 3112	VLSI Technology and Design	E	3
ELE 3121	Microwave Networks	E	3
ELE 3122	Microwave Devices and Circuits	E	3
ELE 3016L	Microprocessors Laboratory	C	1
ELE 3107L	Digital Signal Processing Laboratory	C	1
ELE 3116L	VLSI Laboratory	E	1
ELE 3126L	Microwave Devices and Circuits Lab	E	1
	Total Credits		18

Course Code	Name of the Course	C/E	Credits
Second Semester			
ELE 3201	Seminar	C	1
ELE 3202	Neural Networks	C	3
ELE 3203	Fault Tolerance in Electronic System	E	3
ELE 3204	Digital Image Processing	C	3
ELE 3206	Embedded System Design	E	3
ELE 3211	Wireless Mobile Communication	C	3
ELE 3213	ATM Networks	C	3
ELE 3221	Antenna Theory	E	3
ELE 3222	Radar Systems	E	3
ELE 3206L	Digital Image Processing Lab	C	1
ELE 3216L	Embedded System Design Lab	E	1
ELE 3217L	Antenna Lab	E	1
	Total Credits		18

Course Code	Name of the Course	C/E	Credits
Third Semester			
ELE 3101	Project Progress Evaluation	C	18
Fourth Semester			
ELE 3401	Project Dissertation Evaluation	C	18

SCHEME OF EXAMINATION FOR M.Sc. (ELECTRONICS) W.E.F. 2012 ADMISSIONS

Course No.	Name of the Course	C/E	Credit	Curriculum work per week			Marks		Pre-requisites
				Lect	Lab	Tuto	Sessional	Uty. Ex.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

First Semester

ELE 2101	Mathematical and Computational Methods	E	3	3	0	2	50	50	B.Sc. (Physics/ Electronics/ Computer)
ELE 2102	Electronics devices and circuits	C	3	3	0	2	50	50	B.Sc. (Physics/ Electronics/ Computer)
ELE 2103	Network Analysis	C	3	3	0	2	50	50	B.Sc. (Physics/ Electronics/ Computer)
ELE 2104	Digital logic design	C	3	3	P	2	50	50	B.Sc. (Physics/ Electronics/ Computer)
ELE 2105	Electromagnetics	C	3	3	0	1	50	50	B.Sc. (Physics/ Electronics/ Computer)
ELE 2101L	Computer Laboratory (Computational methods)	E	2	0	6	0	100	..	B.Sc.(Physics Electronics/ Computer)
ELE 2102L	Electronics devices and Circuits Laboratory	C	2	0	6	0	100	..	B.Sc. (Physics Electronics/ Computer)
						Total	19		

Second Semester

ELE 2201	Microprocessors & Microcontrollers	C	3	3	0	2	50	50	ELE 2103
ELE 2202	Communication Electronics	C	3	3	0	2	50	50	ELE 2101
ELE 2203	Digital Signal Processing	C	3	3	0	2	50	50	B.Sc.(Physics/ Electronics/ Computer)
ELE 2204	Control Systems	C	3	3	0	2	50	50	B.Sc.(Physics/ Electronics/ Computer)
ELE 2205	TV & Video systems	E	3	3	0	1	50	50	ELE 2101
ELE 2206	Introduction To Robotics	E	3	3	0	1	50	50	ELE 2204
ELE 2208	Robotics I	E	3	3	0	1	50	50	ELE 2204
ELE 2209	Microwave Devices	E	3	3	0	1	50	50	B.Sc. (Physics/ Electronics/ Computer)
ELE 2210	Data Structures	E	3	3	0	1	50	50	B.Sc. (Physics/ Electronics/ Computer)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
ELE 2201L	Microprocessor Laboratory	C	2	0	6	0	100	..	..
ELE 2204L	Control Systems Laboratory	C	2	0	6	0	100	..	..
						Total	19		

Third Semester

ELE 2301	Seminar	C	2	3	0	0	50	50	..
ELE 2302	Microprocessor systems	C	3	3	0	0	50	50	ELE 2201
ELE 2303	Computer networks	C	3	3	0	0	50	50	B.Sc.(Physics/ Electronics/ Computer)
ELE 2304	Artificial Intelligence	E	3	3	0	0	50	50	ELE 2208
ELE 2305	Robotics and Intelligent Systems	E	3	3	0	0	50	50	ELE 2206
ELE 2308	Wave guides and Antennas	E	3	3	0	0	50	50	ELE 2104
ELE 2309	Operating System	E	3	3	0	0	50	50	B.Sc. (Physics/ Electronics/ Computer)
ELE 2310	Microwave Communication and Radar Systems	E	3	3	0	0	50	50	ELE 2104
ELE 2311	Computer Organization	E	3	3	0	0	50	50	B.Sc.(Physics/ Electronics/ Computer)
ELE 2312	Computer Graphics	E	2	3	0	0	50	50	B.Sc.(Physics/ Electronics/ Computer)
ELE 2313	Sensors and Actuators	E	2	3	0	0	50	50	B.Sc. (Physics/ Electronics/ Computer)
ELE 2302L	Microprocessor Systems Lab.	C	2	0	8	0	100	..	..
ELE 2305L	Robotics Laboratory	E	2	0	8	0	100	..	..
ELE 2310L	Microwave Laboratory	E	2	0	8	0	100	..	..
ELE 2312L	Computer Laboratory	E	2	0	8	0	100	..	..
						Total	18		

Fourth Semester

ELE 2401	Project evaluation and Viva Voce	C	16	..	16	..	100	200	..

Credits for Core (C) courses = 14+16+10+16 = 56

Credits for elective (E) subjects = 05+03+08+00 = 16

Total Credits for the Course = 19+19+18+16 = 72

NOTIFICATION

No. Conf. II/2941/02/2012 (4).   *17th December 2013.*

Read:—No. Conf. II/2941/02/2012 (4) dated 31-10-2012.

In exercise of the powers conferred by section 24(ii) read with section 42(1) of the CUSAT Act 1986, the Academic Council at its meeting held on 5-7-2012, approved the following:

1. Renamed the Elective Paper E7 - Embedded Systems as E7 - Embedded Systems II; with effect from 2012 admission onwards.

2. The pre-requisite of the Elective Paper E15 - Data Mining (Applied probability and Statistics) was removed and introduced pre-requisite for Elective Paper E7 - Embedded Systems II which reads as "The student should have to study basics of Microprocessors at Degree/PG level or must have studied the Elective E 26-Embedded Systems I in this course, prior to choosing the Elective E7 - Embedded Systems II"; with effect from 5-7-2012 the date of meeting of the Academic Council.

3. Amended the Regulations for MCA Programme conducted by recognized Institutions of CUSAT, with effect from 5-7-2012 the date of meeting of the Academic Council as appended.

The Syndicate at its meeting held on 24-8-2013 vide item No. 602.30 ratified the action taken by the Vice-Chancellor in having approved the above.

Cochin University P. O.,   (Sd.)

Kochi-682 022.   *Professor-in-charge of Registrar.*

Amendments to the Regulations for MCA Programmes conducted by Recognised Institutions w.e.f 5-7-2012

Since the University has adopted "Credit and Semester System" for the PG programmes conducted by its PG Departments where students can choose electives from the courses/subjects offered in Various Departments, MCA programmes conducted by Department of Computer Applications, CUSAT and CUCEK, Pulinkunnu and MCA programmes conducted by the recognised institutions shall be under two different streams.

MCA programmes conducted by Department of Computer Applications, CUSAT and CUCEK, Pulinkunnu shall be known as MCA Credit and Semester System (MCA CSS) and MCA programmes conducted by the recognised institutions shall be known as MCA Semester System (MCA SS).

Recognised institutes or colleges which conduct the MCA programme of the Cochin University of Science and Technology shall adopt the following regulation.

A. *Eligibility for admission:* Same as MCA programmes conducted by CUSAT

B. *Applicability*   : 2012 admission onwards

C. *Examination Regulation :*

(i)   All courses shall have internal assessment and external examination. For each course 40% marks are to be awarded on the basis of internal assessment and 60% marks for External Examination conducted by the University.

(ii)   A University Teacher/a teacher from other recognized institution shall be appointed as Observer in all recognised Institutes to monitor the External Examination.

(iii)   Internal assessment shall be done with the following components

- Periodic tests (marks of best 2 out of a minimum of 3 tests)   80%

- Assignments   20%

D. *Internal Assessment:*

1. The internal assessment marks in each semester should be displayed in the College Notice Board before sending it to the Controller of Examinations.

2. The internal marks of the student shall be communicated to the Controller of Examinations along with attendance and Progress Certificate (APC) as per the examination regulation.

3. The faculty shall make available details of the internal assessment marks, with explanations wherever required, to the Head of the Department or Institution in case of grievance regarding internal assessment.

E. *Procedure for grievance handling about internal assessment:*

1. If the students have any grievance against any member of faculty, such grievance shall be dealt with at three levels for a solution :   First the student concerned may present the grievance and discuss it with the concerned faculty.

2. If the grievance is not solved at the faculty level, the student shall submit a written complaint with all the relevant details to the Head of the Department or Institution. A copy of such complaint shall be forwarded to the Controller of Examinations.

3. The complaint shall be dealt with by a Committee of teachers with the Head of the institute, one senior teacher and the teacher whose assessment is a matter of dissatisfaction for the students or students.

4. If it is not solved at the Institute or College level, the Head of the College or Institute shall forward the written complaint of the student along with the reply of the concerned faculty member to the Controller of Examinations, CUSAT.

5. All students shall be informed of the procedure of grievances handling in respect of Internal Assessment.

F. *External Examination:*

1. The University shall conduct end-semester examinations, carrying 60% marks for each subject in all the semesters.

2. The question paper for the End Semester Examinations shall have Part A having 15 questions (3 questions from Each unit) of 2 marks each with no choice and part B having 5 questions (2 questions with choice from each unit) of 6 marks each (Ref. Appendix III A).

3. All other rules and regulations of the MCA programme conducted by the Department of Computer Applications, CUSAT and CUCEK Pulinkunnu shall be applicable to the MCA programmes conducted by the recognised institutes or colleges.

QUESTION PAPER PATTERN

MCA DEGREE _____SEMESTER EXAMINATION (MONTH & YEAR)

CAS 2xOx (NAME OF THE SUBJECT)

Time: 3 Hours   Maximum Marks: 50

PART A

(Answer All questions)

(All questions carry Equal marks)

(15 X 2 marks = 30 marks)

Unit 1

   I   (a).………………………………………………………………………………………....…………

        (b).……………………………………………………………………………………………....……...…..

        (c).………

Unit 2

   II   (a).………………………………………………………………………………………....…………

        (b).……………………………………………………………………………………………....……...…..

        (c).………

Unit 3

   II1   (a).………………………………………………………………………………………....…………

        (b).……………………………………………………………………………………………....……...…..

        (c).………

Unit 4

   IV   (a).………………………………………………………………………………………....…………

        (b).……………………………………………………………………………………………...…………

        (c).………

Unit 5

   V   (a).………………………………………………………………………………………....………..

        (b).……………………………………………………………………………………………...…………

        (c).………

PART B

(All questions carry Equal marks)

(5 X 6 marks = 30 marks)

Unit 1

    VI   A………………………………………………………………………………………………....…….…….

OR

    VI   B…………………………………………………………………………………………………...……..…..

Unit 2

    VII   A………………………………………………………………………………………………....…….…….

OR

    VII   B…………………………………………………………………………………………………...……..…..

Unit 3

    VIII   A………………………………………………………………………………………………....…….…….

OR

    VIII   B…………………………………………………………………………………………………...……..…..

Unit 4

    IX   A………………………………………………………………………………………………....…….…….

OR

    IX   B…………………………………………………………………………………………………...……..…..

Unit 5

    X   A………………………………………………………………………………………………....…….…….

OR

    X   B…………………………………………………………………………………………………...……..…..

******

Note: The composition of the question paper shall have a mixture of questions of different levels as   follows :

Question that can be answered by an average student   :   50% - 60%

Intermediate level of difficult questions   :   30% - 40%

Advance level question   :   10%

NOTIFICATION

No. Conf. II/2941/02/2012 (5).   *17th December 2013.*

Read:—Not. Conf. II/2941/02/2012 (5), dated 31-10-2012.

In exercise of the powers conferred by section 24 (ii) read with section 42(1) of the CUSAT Act 1986, the Academic Council at its meeting held on 5-7-2012, approved the following:

1. The Eligibility Criteria for admission to the Ph. D Programme in Meterial Science with special emphasis on Biopolymers offered by the Centre for Bio Polymer Science and Technology (CBPST) in collaboration with CUSAT as in Appendix-1; with effect from 5-7-2012 the date of meeting of the Academic Council.

2. The Regulations and Scheme of Examinations of the proposed M. Sc. Degree Course in Biopolymer Science of the CBPST in Collaboration with CUSAT, with effect from 2012 Academic Year as in Appendix-2.

3. The Regulation for the 4 year B. Tech. Course in Polymer Science and Engineering with effect from 2012 Academic Year as in Appendix-3.

4. The Regulations to be introduced for the credit based B. Tech. Course in Polymer Science and Engineering with effect from 2012 -13 Academic Year as in Appendix-4.

The Syndicate at its meeting held on 24-8-2013 vide item No. 602.30 ratified the action taken by the Vice-Chancellor in having approved the above.

Cochin University P. O.,   (Sd.)

Kochi-682 022.   *Professor-in-charge of Registrar.*

APPENDIX – 1

Doctor of Philosophy (Ph.D) Programme

(Offered by Centre for Biopolymer Science & Technology-CBPST, Cochin - in collaboration with CUSAT)

Regulations and Curriculum

Ph. D Programme in Material Science with special emphasis on Biopolymers will be offered by Centre for Biopolymer Science & Technology-CBPST, Cochin-in collaboration with CUSAT, follows the existing rules & regulations for Ph.D, laid down by CUSAT.

1. *Eligibility for admission to the course*

   1.1   Candidates for admission to the Ph.D programme shall be required to have passed the following qualifying examination with a minimum of 55% Marks.

   M.Sc. Chemistry/Polymer Chemistry/Biotechnology or M. Tech in Polymer Science & Technology/Polymer Nanotechnology/Plastics Engineering/BioTechnology.

   Communal reservation of seats shall be as per existing rules of the University.

   1.2   Preference will be given to NET/CSIR qualified candidates and candidates having valid GATE score.

   1.3   Candidates who have not qualified NET/GATE/CSIR   will be selected based on Departmental Admission Test (DAT)/Interview, jointly conducted by Department of Polymer Science & Technology, CUSAT and CBPST (A unit of CIPET), Cochin

       (i) The Departmental Admission Test (DAT) shall have two parts.

         (a)   Written test and (b) Interview

       (ii) Candidates who have scored at least 50% marks in the Departmental Admission Test (DAT) (provided that the minimum is 45% marks for candidates belonging to SC/ST) will be eligible to be ranked for admission.

(iii) The weightage for Qualifying examination, DAT and Interview for ranking will be as follows:

    (a)   Marks obtained in Qualifying Examination—30%

    (b)   Marks obtained in the Written test—50%

    (c)   Marks obtained in the interview —20%

<div align="center">Total —100%</div>

1.4   Part-Time Ph.D will be offered for faculties/officials working in recognized institutions as per CUSAT rules & regulations.

1.5   Scholarship will be provided by as per CBPST norms, for those candidates who are not funded/sponsored or not having any scholarship.

All other existing rules & regulations of CUSAT will be followed.

<div align="center">Appendix 2</div>

<div align="center">M. Sc Degree Course in Biopolymer Science</div>

<div align="center">(Offered by Centre for Biopolymer Science & Technology-CBPST, Cochin-in collaboration with CUSAT)</div>

Regulations and Curriculum

The M.Sc. Degree course in Biopolymer Science is a Four Semester Course, each semester of duration 16–18 weeks. The course comprises of lectures, laboratory practical, project work and seminar as per the Curriculum given in clause 9.

1. Eligibility for admission to the course

1.1.   Candidates for admission to the Master of Science in Biopolymer Science Degree Course shall be required to have passed the B.Sc. Degree examination with Chemistry as one of the subjects (Main or one of the subsidiary subjects) of any University / Institution approved by UGC. The candidate should have passed the qualifying examination with a minimum of 50% Marks in the main and subsidiary subjects taken together. Communal reservation of seats shall be as per existing rules of the University.

1.2.   A valid common admission test score (CAT score) in the admission test conducted by the University is an essential requirement for admission to this course.* Rank list for admission to the course shall be prepared on the basis Admission test / interview. Candidates, who have completed the course or have appeared for the final qualifying examination, can apply for the said Course. Such candidates shall attain eligibility before taking admission to the Course and shall submit Provisional Certificate and all marklists of the qualifying examination as a proof of fulfilling eligibility criteria.

No admission shall be made after 30 working days from the date of commencement of the semester classes.

* *Note*:—Since Common Admission Test for the current academic year of 2012 is already over, candidates for this course are to be selected based on Departmental Admission Test (DAT)/Interview, jointly conducted by Department of Polymer Science & Technology, CUSAT and CBPST (A unit of CIPET), Cochin.

2. Course of study

The course work for the M.Sc Degree in Biopolymer Science shall be in accordance with the scheme of examination and syllabus prescribed. The course shall extend over a period of two academic years comprising of four semesters, each of minimum 16 -18 weeks duration, with 90 working days.

Each candidate has to register for the course as per the existing course Registration regulations for P.G. Courses. The general structure of the course shall be as per the existing regulations of the University.

3. Eligibility for the Degree

No candidate shall be eligible for the Degree of Master of Science in Biopolymer Science unless he has undergone the prescribed course of study in a department/centre/institution under the University for not less than two academic years and has passed all the prescribed examinations as per the scheme prescribed for this course.

4. Evaluation

There shall be a University Examination at the end of the first three semesters and the project report valued and viva-voce conducted at the end of the fourth semester.   The evaluation scheme for each semester contains two parts, an internal assessment and an external examination. However, all practical examinations will be internally evaluated as per the procedures laid down by the concerned Department/Centre council.

The existing rules shall apply for the conduct of all external semester examinations relating to all courses coming under these regulations.

Question paper for End semester external examination shall have Part 'A' having 15 questions of 2 marks each, Part 'B' having 5 questions of 6 marks each with a total of 60 marks

Candidate has to secure a minimum of 45 % marks in external examination and 50% marks for internal and external marks together, for a pass in any subject.

Irrespective of passing the examination at the end of a semester, candidates may be allowed to attend the next semester. The marks awarded for internal assessment in a subject shall be carried over, if the candidate has to repeat the examination in that particular subject.

5. Pass Requirements and Grading

5.1. The University under its seal shall issue to the students a grade card on completion of each semester. The grade card shall contain the following:

(a) Title of the courses taken as Core and Elective

(b) The credits associated with and grades awarded for each course.

(c) The number of credits (Core and Elective separately) earned by the student and the grade point average.

(d) The total credits (Core and Elective) earned by the student till that semester.

5.2   The following grading system shall be adopted for all the courses. The following grades will be awarded based on the overall performance in each subject.

Range of marks	Grades	Weightage
90% and above	S-Outstanding	10
(80-90)	A-Excellent	9
(70-80)	B-Very Good	8
(60-70)	C-Good	7
(50-60)	D-Satisfactory	6
Below 50%	F-Failed	0

Here (X-Y) means X is included and Y is excluded.

Overall performance at the end of the semester shall be indicated by a Grade Point Average (GPA), calculated as follows:

$$GPA = \frac{G1C1+G2C2+G3C3+ ....GnCn}{C1+C2+C3+..Cn}$$

Where 'G' refers to the grade weightage and 'C' refers to the credit value of the corresponding course undergone by the student.

At the end of the final semester Cumulative Grade Point Average (CGPA) will be calculated based on the above formula.

Classification for the Degree will be given as follows:

Classification	*CGPA*
First Class with distinction	8 and above
First Class	7 and above
Second Class	6 and above

5.3   The Grade Card issued at the end of the final semester shall contain the details of all the courses taken which shall include the titles of the courses, the credits associated with each course, the CGPA and the class in which the student is placed. The rank shall be awarded based on CGPA corrected to the second decimal.

5.4   *Those who fail any Core or Elective course shall be given two additional chances for appearing for the semester-end examination within a period of two years after the completion of the course. However, the marks obtained by the continuous assessment during the semester can be improved only by repeating the course. Students can repeat the course after obtaining permission from the Departmental Council.*

Ranking will be made on the basis of CGPA. In case of a tie the percentage marks will be considered for a decision.

6. Rules regarding Attendance

Every candidate is required to secure a minimum of 75% attendance in aggregate to be eligible to register for the University Examination.

Any relaxation on minimum attendance shall be as per the existing rules of the University in this regard.

7. Course Fees

The fee structure for the course will be decided by Central Institute of plastics Engineering & Technology (CIPET) and will be announced at the time of inviting application to the Course. The fees for the first semester shall be payable at the time of admission and for subsequent semesters, on or before the fifth working day after reopening of each semester.

The registration fees as decided by the University shall be submitted to University by every candidate at the time of registration of each semester; Examination fee shall be submitted to University by every candidate at the time of application.

8. Number of seats

The total number of seats, including reserved ones, shall be 20. The University may change this number depending on availability of facilities.

9. Course Structure

Semester I to III consists of Seven subjects each with a total credit of 19 each ; Semester IV consists of Seminar, Industrial training & Project Work with a total credit of 17.

One elective is offered in Semester III out of the following three subjects:

BPS 305 (A) Polymer Nanocomposites

BPS 305 (B) Rubber Technology

BPS 305 (C) Plastics Packaging Technology

Industrial training (4 credits) along with Project work (12 credits) is to be done in the last semester. Industrial Training report and   Project report will be evaluated by the internal supervising guide and another faculty member for internal valuation and   Project report will be evaluated by an external examiner and an internal faculty member for external valuation. Three copies of Training repot & Project report should be submitted in advance for evaluation. Project evaluation will consist of a Viva-Voce examination also.

Each student shall give a seminar (1 credit) of at least 30 minutes duration during the last semester. The seminar shall be on a topic relevant to Biopolymer Science, selected by the student in consultation with faculty adviser. The comprehensive viva-voce examination during the final semester will cover the courses covered in all the previous semesters.

10. Application procedure

Candidates seeking admission to the course may apply in the prescribed form to register for the Common Admission Test conducted by the University every year, paying the necessary fees. The pattern and mode of the CAT will be decided by the University and will be notified while inviting applications.

Note:— Since Common Admission Test for the current academic year of 2012 is already over, candidates seeking admission to this course may apply on basis of Advertisement

which will be given by CBPST (A unit of CIPET), Cochin and downloading the application form directly from the website www.cipet.gov.in

11. Revision of curriculum

The University may from time to time revise, amend or change the regulations, scheme of examinations and syllabi.

In the case of students already undergoing the course the changes will take effect from the beginning of the following semester after the changes are introduced and shall be applicable to the part of the course that remains to be completed, unless otherwise decided.

Whenever there is a change in the existing scheme of examinations, the University examinations based on the old scheme/syllabi will be conducted for two more academic years only.

12. Other matters

In all other matters not covered in these regulations, the relevant University rules and decisions shall be applicable.

COURSE STRUCTURE

M.sc. In Biopolymer Science

Sl. No.	Subject Code	Subject	Core/ Elective	L	T	P	C	Marks		
								Int	Ext	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
			I Semester							
1	BPS 2101	Polymer Chemistry	C	4	1	0	3	40	60	100
2	BPS 2102	Fundamentals of Polymer Science	C	4	1	0	3	40	60	100
3	BPS 2103	Plastics Materials – I	C	4	1	0	3	40	60	100
4	BPS 2104	Additives & Compounding	C	4	1	0	3	40	60	100
5	BPS 2105	Rubbers, Fibres, Adhesives & Coatings	C	4	1	0	3	40	60	100
6	BPS 2106	Polymer Synthesis Lab	C	0	0	3	2	100	-	100
7	BPS 2107	Polymer Analysis Lab	C	0	0	3	2	100	-	100
			Total	**20**	**5**	**6**	**19**	**400**	**300**	**700**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
				II Semester						
1	BPS 2201	Plastics Materials –II	C	4	1	0	3	40	60	100
2	BPS 2202	Polymer Processing –I	C	4	1	0	3	40	60	100
3	BPS 2203	Polymer Rheology	C	4	1	0	3	40	60	100
4	BPS 2204	Plastics Testing –I	C	4	1	0	3	40	60	100
5	BPS 2205	Biopolymers-I	C	4	1	0	3	40	60	100
6	BPS 2206	Polymer Processing Lab	C	0	0	3	2	100	-	100
7	BPS 2207	Plastics Testing Lab – I	C	0	0	3	2	100	-	100
		Total		**20**	**5**	**6**	**19**	**400**	**300**	**700**
				III Semester						
1	BPS 2301	Biopolymers –II	C	4	1	0	3	40	60	100
2	BPS 2302	Polymer Processing –II	C	4	1	0	3	40	60	100
3	BPS 2303	Polymer Blends & Composites	C	4	1	0	3	40	60	100
4	BPS 2304	Biomedical Polymers	C	4	1	0	3	40	60	100
5	BPS 2305	A. Polymer Nanocomposites B. Rubber Technology C. Plastics Packaging Technology	E	4	1	0	3	40	60	100
6	BPS 2306	Biopolymer Chemistry Lab	C	0	0	3	2	100	-	100
7	BPS 2307	Polymer Characterisation and Testing Lab	C	0	0	3	2	100	-	100
		Total		**20**	**5**	**6**	**19**	**400**	**300**	**700**
				IV Semester						
1	BPS 2401	Seminar	C	0	0	3	1	100	-	100
2	BPS 2402	Industrial Training	C	0	0	9	4	80	120	200
3	BPS 2403	Project Work and Viva Voce	C	0	0	18	12	160	240	400
		Total					**17**	**340**	**360**	**700**

Note:— L-Lecture hours/T-Tutorial hours/P-Practical hours per week; C-Credit.

REGULATIONS OF THE 4-YEAR B.TECH COURSE IN POLYMER SCIENCE AND ENGINEERING

1. Conditions for Admission

Candidates for admission to the B.Tech. Degree Courses shall be required to possess the following qualifications.

1.1 The candidate shall have passed the Plus Two/Pre-Degree Examination of any University in Kerala with Mathematics, Physics and Chemistry as subjects or any other examination accepted as equivalent thereto by the Cochin University of Science and Technology.

1.2 The candidate shall have secured minimum 50% marks in Mathematics as well as for Mathematics, Physics and Chemistry put together.

1.3 In the case of candidates who belong to socially and educationally backward classes [referred to in G.O. (P) 208/66/Edn. dated 2-5-1966, as amended from time to time] the minimum marks requirements are 45% for Mathematics and 45% for Mathematics, Physics and Chemistry put together.

1.4   In the case of SC/ST students only a pass is required in the subjects

1.5 The candidates shall also satisfy the conditions regarding physical fitness as may be prescribed by the University.

1.6 Admission to the course shall be through Common Admission Test conducted by the University.

1.7 No Admission shall be made after 15 working days from the date of commencement of the first semester as per the Academic Calendar approved by the University.

2. Duration of the Course

2.1 The curriculum requirement of B.Tech. Degree shall consist of a period of 4 academic years as prescribed in the curriculum.

2.2 The four academic years shall be split into 8 semesters. Examinations will be conducted at the end of each semester in subjects prescribed in the respective scheme of examinations.

2.3 The teaching programme for each semester shall consist of 15 weeks.

3. Promotion to Higher Semesters

3.1 A candidate shall be eligible for promotion from one semester to the next semester only if

   a.   He/she has secured a minimum of 75% attendance.

   b.   His/her progress and conduct have been satisfactory.

4. Eligibility to the Degree

4.1 A candidate shall become eligible for the B.Tech. degree when he has undergone the prescribed course of study for a period of 4 academic years in the University and has passed the prescribed examinations in all the semesters.

4.2 The candidates shall complete all requirements for degree within a period of 8 academic years from the date of admission to the first year.

5. Rules regarding Sessional Marks

5.1 The total sessional marks for theory courses shall be made up of 80% for internal tests and 20% for assignments and seminars. For laboratory papers/industrial project and training sessionals will be based on internal test and the day to day performance in the labs/industry.

6.   Rules for Readmission

6. 1   Students who are unable to attend classes on medical grounds after completing the first two semesters may be readmitted to the respective semester along with the subsequent batch.

6. 2   A student seeking readmission shall give a written application to the Head of the Department thirty days prior to the commencement of the semester to which readmission is sought.

6.3   Students who have been removed from the nominal rolls due to default in payment of the semester fees shall be readmitted subject to the existing rule of the University from time to time.

7.   Pass Requirements and classifiction of successful candidates

Regular Candidates

7. 1   A candidate who secures not less than 45% marks in a subject at the University Examinations and 50% aggregate marks in the University examination and sessional put together shall be declared to have passed in the examination in that subject. That is, the candidate has to secure a minimum of 23 marks out of 50 for the external examination. In subjects where there are no University examinations a candidate shall secure 50% sessional marks for a pass in that subject.

7. 2   A candidate who qualifies for the degree passing all the subjects of all the examinations in the first chance and secures an aggregate of not less than 75% of the grand total of marks including sessional marks for all the eight semesters shall be declared to have passed in First Class with Distinction.

7. 3   A candidate who qualifies for the degree passing all the subjects of the examinations and secures not less than 60% of the grand total of marks including sessional marks for all the 8 semesters shall be declared to have passed in First Class provided he has completed the course within a period of 8 academic years.

7. 4   All the other successful candidates shall be declared to have passed all the examinations for the degree in Second Class provided they have completed the course within a perod of 8 academic years.

7. 5   Ranking among the candidates will be limited to those who have passed all the examinations in the first available chance and have secured at least First Class.

Lateral Entry Candidates

7. 6   Rules for the lateral entry students of B. Tech Polymer Science and Engineering will be the same as those followed for regular students. But the classification and finalization of the results shall be made based on the six semesters attended by the student.

7. 7   A lateral entry candidate who qualifies for the degree passing all the subjects of all the examinations in the first chance and secures an aggregate of not less than 75% of the grand total of marks including sessional marks for all the six semesters shall be declared to have passed in First Class with Distinction.

7. 8   A lateral entry candidate who qualifies for the degree passing all the subjects of the examinations and secures not less than 60% of the grand total of marks including sessional marks for all the six semesters shall be declared to have passed in First Class provided he has completed the course within a period of 7 academic years from the date of admission.

7. 9   All other successful lateral entry candidates shall be declared to have passed all the examinations for the degree in Second Class provided they have completed the course within a period of 7 academic years from the date of admission.

7. 10 Ranking among the candidates will be limited to those who have passed all the examinations in the first available chance and have secured at least First Class.

8.   General

All the rules specified herein will be subject to the general rules prescribed by the University from time to time.

APPENDIX 4

REGULATIONS FOR B.TECH DEGREE COURSE IN POLYMER SCIENCE   AND
ENGINEERING UNDER FACULTY OF TECHNOLOGY

The regulations of the B.Tech. programme in Polymer Science and Engineering offered by the Department of Polymer Science and Rubber Technology with effect from 2012-13 are given below:

1.1   B.Tech Programme

1.1.1   The B.Tech (Polymer Science and Engineering) course will follow credit system.

1.1.2   The curriculum of the B. Tech. programme shall have a minimum total of 176 credits.

1.2 Mode of Evaluation

1.2.1   The performance of the students in theory and practical courses will be evaluated based on continuous assessment and end semester examination.

1.2.2. For theory courses and practical courses, continuous assessment and end semester examination will carry 50 percent weightage each.

1.2.3.   In each theory course, the assessment pattern will be as follows :

Continuous assessment :

1.   I Periodical Test   – Maximum marks : 12.5

2. II Periodical Test   – Maximum marks : 12.5

3.   Assignments - Maximum marks : 20

4.   Attendance – Maximum marks : 5

The marks for attendance shall be awarded as per the scheme given below :

Percentage attendance	*Marks*
95 – 100	5
90 – 94	4
85 – 89	3
80 – 84	2
75 – 79	1

End Semester Examination of 3 hours duration – Maximum marks : 50

In each practical course, assessment pattern will be as follows :

1.   Continuous assessment : 50 marks

For continuous assessment, marks may be awarded on the basis of regularity and performance of the student in the laboratory sessions.

2. End semester examination : 50 marks

Normally both question paper setting and valuation of answer papers for all the periodical tests shall be carried out by the teacher who has handled the course. The question paper for the end semester examination for theory papers will be set by an external examiner. The controller of examinations will make necessary arrangements for setting the question papers and valuation of answer books for the end semester examination.

The continuous assessment in laboratory course will be based on supervision of the student's work, their performance in viva-voce examinations and the quality of their work.   The end- semester examination for the laboratory courses shall be conducted internally by the respective department / division with at least two faculty members as examiners.

In the case of project work, a committee consisting of the Project Coordinator (appointed by the Head of the Department/Division), project guide and at least one senior faculty member will carry out the assessment based on at least two interim reviews and a final review just before the submission of the project report.

The Viva-voce examination at the end of VIII Semester will be conducted by a panel of examiners consisting of the Head of the Department/Division or his/her nominee and one senior faculty of the Department/Division and one external expert.

A candidate shall be allowed to improve the continuous assessment marks in theory/laboratory courses subject to the following conditions :

   (a) He/she shall not combine the course work with his/her regular course work.

   (b) He/she shall repeat the theory/practical course in a particular course only once and satisfy the minimum attendance requirement of 75 percent in that particular course.

   (c) He/she shall not be allowed to repeat the course work of any semester if he/she has already passed the semester examination in full.

1.3. Pass requirements

A candidate has to obtain a minimum of 50 percent marks for continuous assessment and end semester examination put together with a minimum of 45 percent marks in the end semester examination for a pass in both theory and laboratory courses. That is, he/she has to score a minimum of 23 marks out of 50 for the external examination.

1. 4. Promotion to Higher Semesters

   1.5. 1. The candidate shall be eligible for promotion from one semester to the next semester only if the following conditions are satisfied :

   (a) He/she has secured a minimum of 75 % attendance.

   (b) Promotion from one semester to the next semester shall be subject to the condition that the candidate to be promoted to the nth semester should have earned a minimum of (n-2)15 credits. This norm is applicable only from 5th semester onwards.

   (c) His/her progress and conduct have been satisfactory.

1.5. Attendance

   1.5.1 The percentage of attendance of a candidate for a semester shall be indicated by a letter code as given below.

Percentage Attendance	Letter Code
90% and above	H
75% and above but less than 90%	N
Less than 75%	L

   1.5.2. A student whose attendance is less than 75% for a semester is not eligible to appear for the end semester examination.

   1.5.3 The Vice-Chancellor shall have the power to condone shortage of attendance up to 10 percent on medical grounds on the recommendations of the Head of Division/Department. However such condonation for shortage of attendance shall be given only twice during the entire course.

1.6. Grading

   1.6.1 Grades shall be awarded to the students in each course based on the total marks obtained in continuous assessment and the end semester examination. The grading pattern shall be as follows:

Marks obtained (Percentage)	Grade	Grade points
90- 100	S	10
80-89	A	9
70-79	B	8
60-69	C	7
50-59	D	6
Less than 50	F	0

1.6.2.   A student is considered to have credited a course or earned credits in respect of a course if he/she secures a grade other than F   for that course.

1.6.3.Grade Point Average.

The academic performance of a student in a semester is indicated by the Semester Grade Point Average (SGPA).

$$SGPA = \frac{G1C1 + G2C2 + G3C3 + \text{.....................} GnCn}{C1 + C2 + C3 + \text{............................} Cn}$$

Where 'G' refers to the grade point and 'C' refers to the credit value of corresponding course undergone by the student.

1.6.4. The cumulative grade point average (CGPA) will be calculated as

$$CGPA = \frac{S1T1 + S2T2 + S3T3 + \text{.......}SnTn}{T1 + T2 + T3 + \text{.......} Tn}$$

Where 'S' refers to the semester grade point average

'T' refers to the total credits in that semester.

1.6.5. Grade Card

The Grade Card issued at the end of the semester to each student by the Controller of Examinations, will contain the following:

(a) The code, title, number of credits of each course registered in the semester,

(b) The letter grade obtained,

(c) The attendance code,

(d) The total number of credits earned by the student upto the end of that semester and

(e) SGPA & CGPA.

1.6.6. Classification

Classification based on CGPA is as follows:

CGPA 8 and above	:	**First Class with distinction** (Provided the candidate qualifies for the degree by passing all the subjects of all the examination in the first chance)
CGPA 6.5 and above, but less than 8	:	**First Class** (Provided the candidate completes the course in a period of 8 academic years for regular students and in a period of 7 academic years from the date of admission for lateral entry students.)
CGPA 6 and above, but less than 6.5	:	**Second Class** (Provided the candidate completes the course in a period of 8 academic years for regular students and in a period of 7 academic years from the date of admission for lateral entry students.)

1.7.   All the rules and regulations specified herein are subject to the general rules adopted by the University from time to time.

NOTIFICATION

No. Conf. II/2941/02/2012 (6).   *22nd January 2014.*

    Read: Not. Conf. II/2941/02/2012 (6) dated 31-10-2012.

    The exercise of the powers conferred by Section 24 (ii) read with Section 42(1) of CUSAT Act 1986, the Academic Council at its meeting held on 5-7-2012 approved the following:

1.   The Regulations and Scheme of Examinations for the following two courses offered in Indian Institute of Information Technology and management-Kerala (IIITM-K) as in Appendix -1.

    (a)   M. Sc. Computer Science and Information Security

    (b)   M. Phil (Computer Science)

2.   The Eligibility Criteria for M. Sc. Geoinformatics offered at IIITM-K as "Bachelor's' Degree in any Science/ Engineering/Technology Branch with Mathematics/Geology/Geography as a subject of study in that course".

3.   The Scheme and Examination or M.Tech. Computer Science with Specialization Cyber Forensics and Information Security as in Appendix-2; with effect from 2012 admissions**.**

4.   Question Paper for the End Semster External Examination for M.Sc. Programmes in Recognised Institutions, under Faculty of Technology shall have Part A having 15 questions of 2 marks each and Part B having 5 questions of 6 marks each, with a total of 60 marks; out of this 60 the minimum score required to secure a pass shall be 45%. There shall be a maximum of 40 marks for Internal Assessment. In order to secure a pass in any subject the candidate has to score an aggregate of 50% of the total of End Semester Examination and the Internal Assessment marks; with effect from 2013 admissions onwards.

5.   The Revised Scheme for the M. Tech. in Computer Scince specialization in Data Security offered in the Recognized Institutions as in Appendix-3, with effect from 2012 admissions.

6.   The revised scheme for the M. Tech. in Computer and Information Science and the M.Tech. in Software Engineering, offered by the Department of Computer Science, with effect from 2012 admissions as in Appendix-4.

7.   To unify the eligibility condition for both the M.Tech. Programme in Computer and Information Science and in Software Engineering offered at Department of Computer Science, by adopting existing eligibility condition of the M. Tech., in Software Engineering, with effect from 2013 admissions as follows:

    (1) B. Tech. or equivalent Degree/AMIETE/AMIE in the branch of Computer Science or Information Technology or Electronics Communication, or MCA; with a First Class (60% marks) applicable to all the above, from any recognized University or Institution.

    (2) A valid GATE score in the subject 'Computer Science & Information Technology'.

    The Syndicate at its meeting held on 24-8-2013 vide Item No. 602.30 ratified the action taken by the Vice-Chancellor in having approved the above.

Cochin University P. O.,   (Sd.)

Kochi-682 022.   *Professor-in-charge of Registrar.*

Appendix – 1

MASTER OF SCIENCE IN COMPUTER SCIENCE AND INFORMATION SECURITY

2. **Regulations**

2.1 Course Description

Master of Science in Computer Science and Information Security will be a flagship programme offered by the Indian Institute of Information Technology and Management-Kerala, aims at offering a high standard curriculum in Computer Science and Information Security. The programme focuses on a broad grasp of foundations in Computer Science and Information Security, deep understanding of the area of specialization, an innovative ability to solve new problems, and a capacity to learn continually and interact with trans-disciplinary groups. The technology enhanced e-learning methodologies with web based course management system and on-line learning system enriches the programme, allow to broaden their horizons.

The duration of the programme is 2 years and the courses are carefully designed to attain technical aspects that enable the students to grow into competent information security professionals. There are 9 core courses of 3 credits each Spread across the first 3 semesters accumulating 27 credits. The students are required to do a minor project of 2 credits each during the second and third semesters accumulating 4 credits ,a lab of 1 or 2 credits during the first three semesters accumulating 5 credits. The students are also required to take 1 elective course during the first semester and two elective courses during second semester and 3 elective courses during the third semester of 3 credits each accumulating 18 credits. The 4th semester is for project/internship of 18 credits. Students are required to undergo an industry or research oriented project in any leading IT or R &D organizations. The total requirement for the programme is 72 credits.

2.2 Salient Features

1.   Students are selected through an entrance examination and an interview.

2.   Students are provided with high-end network and software services, e-learning technologies, and multimedia facilities.

3.   Courses at basic and advanced levels with cutting edge technologies.

4.   Highly qualified faculty actively engaged in teaching and research. Also visiting faculty from leading institutes and industries.

5.   Support of Digital Library with good collection of e-journals, e-books, online reports and other digital materials.

6.   Multimedia Digital Library with course videos available at any time.

7.   Teamwork and students community and collaboration group enable healthy exchange of information.

8.   Students can participate in ongoing research and technology development, live projects and networks.

9.   The technology enhanced learning methodology and e-learning framework allows students to learn at anytime in their own pace.

10. Situated in Technopark, India's largest IT park that hosts over 150 IT companies allows students to interact with techies and get in touch with current technologies and developments.

2.3 Eligibility

Entry-level requirement is a Bachelor's degree in any branch of Engineering/ Technology with minimum score of 60 percentage marks or CPI/CGPA of above 6.5 in 10 points, in the qualifying examination.

2.4 Admissions

Students are selected through an All India entrance examination and an interview under the supervision of CUSAT. Reservation of seats for SC/ST, OBC etc. is applicable as per CUSAT rules. The final selection of the candidates is done through an interview from the short listed candidates of written test. The total intake of the students is 40.

2.5 Assessment, Evaluation and Grading System

There will be 40% for internal examination and 60% external examination marks for all courses except the minor projects. The minor projects will have only internal evaluations. There will be a continuous assessment for classroom performance, lab exercises, seminars and discussions. The evaluation scheme for each semester has internal assessment, End semester examinations and lab examinations. All practical examinations will be internally evaluated.

The Question paper for the end semester external examination shall have Part A having 15 Questions of 2 marks each and Part B having 5 Questions of 6 marks each with a total of 60 marks out this 60, the minimum score required to secure a pass shall be 45%. There shall be a maximum of 40 marks for internal assessments. In order to secure a pass in any subject the candidate has to score an aggregate of 50% of the total of end semester examination and internal assessment marks.

The evaluation of a student's performance at the end of the semester results in a grade, and a grade card will be issued on completion of each semester. The grade pattern is given below:

Marks	Range Grade	Weightage
90% and above	S-Outstanding	10
80-89	A-Excellent	9
70-79	B- Very Good	8
60-69	C-Good	7
50-59	D- Satisfactory	6
Below 50%	F-Failed	0

There will be a Grade W and I, where W is withheld and I is incomplete. The Performance Index (PI) of a student over a set of credited courses c1 , ... cn is a measure of the student's average performance over that set of courses. PI is calculated as the average grade point over the set of credited courses weighted by the number of credits for each course.

Overall performance at the end of the semester will be indicated by Semester Performance Index

(SPI) and is calculated as follows:

$$SPI = \frac{G1C1 + G2C2 + G3C3 + \ldots\ldots + GnCn}{C1+C2+C3+\ldots\ldots\ldots\ldots\ldots\ldots+Cn}$$

where 'G' refers to the grade weightage and 'C' refers to the credit value of corresponding course undergone by the student.

At the end of the final semester the Cumulative Performance Index (CPI) will also be calculated based on the above formula.

2.6 Total Credit Requirements

Each course has assigned a fixed number of credits. In addition there are 18 credits for research and internship projects. The student should have accumulated a total of at least 72 credits. The minimum grade for attaining the degree is 6.5.

3 Courses

The curriculum comprises of core courses, elective courses, mini projects and internship/project. The credit requirements for the degree are summarized below.

Requirement	Credits
Core Courses	27
Elective Courses	18
Mini Projects	04
Internship/Project	18
Total Credits	72

3.1 Core Courses

The student is required to earn 27 credits from the following 9 core courses:

1.   ISMS2101 Number Theory and Algebra

2.   ISMS2102 Computer Networks, Security and Cyber Crimes

3.   ISMS2103 Computer Architecture and Organization

4.   ISMS2104 Object Oriented Programming in JAVA

5.   ISMS2201 Cryptography

6.   ISMS2202 Operating Systems

7.   ISMS2203 Data Structures and Algorithms

8.   ISMS2301 Database Management Systems and Security

9.   ISMS2302 Information Systems Control and Audit

3.2 Elective Courses

The elective courses are offered in the 1st, 2nd and the 3rd semesters. A student is required to earn 18 credits in 6 elective courses from the following list of 24 elective courses:

1.   ISMS2001 Advanced Topics in Cryptography

2.   ISMS2002 Cryptanalysis

3.   ISMS2003 Secure Internet Programming

4. ISMS2004 Pattern Recognition for Computer Security

5. ISMS2005 Biometrics for Security

6. ISMS2006 Steganography, Digital Watermarking and DRM

7. ISMS2007 Theory of Computation

8. ISMS2008 Statistical Methods

9. ISMS2009 Scientific Computing

10. ISMS2010 High Performance Computing

11. ISMS2011 Digital Signal Processing

12. ISMS2012 Artificial Intelligence

13. ISMS2013 Software Engineering

14. ISMS2014 Soft Computing

15. ISMS2015 Web Technology

16. ISMS2016 Object Oriented Analysis and Design

17. ISMS2017 Principles of Management

18. ISMS2018 Computational Linguistics

19. ISMS2019 Embedded Systems

20. ISMS2020 Security in Distributed Environments

21. ISMS2021 Data Analytics

22. ISMS2022 Digital Image Processing and Pattern Recognition

23. ISMS2023 Autonomic and Context-Aware Computing

24. ISMS2024 Cryptography Standards

3.3 Mini Projects

A student is required to do one mini project related to Information Security or Computer Science each during the Semester 2 and Semester 3 independently under the guidance of any faculty member of the institute. This facilitates the student to get familiarize with the latest research and development trends in the field. At the end of the semester the student is required to submit a report of the mini project and give an oral presentation of the mini project carried out by him/her. The project report and the oral presentation will be evaluated by a 3 member committee comprising of the faculty members of the institute including the project guide. The project report and the oral presentation carries 25 marks each. There will not be any external evaluation for the mini projects. The mini-project in all semesters carry 2 credit each

The following are the mini-projects:

1. ISMS2206 Mini Project 1 (Semester 2)

2. ISMS2306 Mini Project 2 (Semester 3)

3.4 Core Labs

A student is required to do two labs in the first semester and one in each of the second and third semester. The lab report and lab examination carries 25 marks each. There will not be any external evaluation for the labs. The lab in all the semesters carry one or two credits each.

1. ISMS2106 Java Programming (Semester 1)

2. ISMS2107 Network Security Lab (Semester 1)

3. ISMS2207 Cryptology Lab (Semester 2)

4. ISMS2307 Cyber Forensics Lab (Semester 3)

3.5 Project/Internship

A student is required to do a project related to Information Security during the Semester 4, independently under the guidance of any faculty member of the institute or as an internship project in an industry or any reputed academic/research institute. If a student is opting for an internship project in an industry or any other reputed academic/research institute, he is required to have an internal guide from the institute. The project/internship aims to provide the student an opportunity to participate and work in a major research/development activity. Typically, the industry internship helps the student to learn about work culture, business processes, technologies, marketing strategies, etc. At the end of the semester the student is required to submit a report of the project/internship and give an oral presentation of the project/internship carried out by him/her. The project report and the oral presentation will be evaluated by both an internal committee comprising of the faculty members of the institute including the project guide as well as an external committee constituted by the university. The internal and external evaluation of the project report and the oral presentation carries 250 marks each. The project/internship carries 18 credits.

The projects/internship is:

1. ISMS2401 Project/Internship

Semester-wise Breakup of Courses for 2 Years

For graduation, the student must satisfy all the requirements as per University rules.

No.	C.Code	Course Title	Credits	Lect	Lab	IE	UE	Tot
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Semester I								
1	ISMS2101	Number Theory and Algebra	3	3	0	40	60	100
2	ISMS2102	Computer Networks, Security and Cyber Crimes	3	3	0	40	60	100
3	ISMS2103	Computer Architecture and Organization	3	3	0	40	60	100
4	ISMS2104	Object Oriented Programming in JAVA	3	3	0	40	60	100
5	ISMS2EL1	Elective 1	3	3	0	40	60	100
6	ISMS2106	Java Programming Lab	1	0	3	50	*	50
7	ISMS2107	Network Security Lab	2	0	6	50	*	50
*	..	Total for Semester I	18	15	9	300	300	600

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		Semester II						
1	ISMS2201	Cryptography	3	3	0	40	60	100
2	ISMS2202	Operating Systems	3	3	0	40	60	100
3	ISMS2203	Data Structures and Algorithms	3	3	0	40	60	100
4	ISMS2EL2	Elective 2	3	3	0	40	60	100
5	ISMS2EL3	Elective 3	3	3	0	40	60	100
6	ISMS2206	Mini Project 1	2	0	0	50	*	50
7	ISMS2207	Cryptology Lab	1	0	3	50	*	50
*	..	Total for Semester II	18	15	3	300	300	600
		Semester III						
1	ISMS2301	Database Management Systems and Security	3	3	0	40	60	100
2	ISMS2302	Information Systems Control and Audit	3	3	0	40	60	100
3	ISMS2EL4	Elective 4	3	3	0	40	60	100
4	ISMS2EL5	Elective 5	3	3	0	40	60	100
5	ISMS2EL6	Elective 6	3	3	0	40	60	100
6	ISMS2306	Mini Project 2	2	0	0	50	*	50
7	ISMS2307	Cyber Forensics Lab	1	0	3	50	*	50
*	..	Total for Semester III	18	15	3	300	300	600

Semester IV

No.	C.Code	Course Title	Marks		
			IE	*UE*	*Total*
1	ISMS2401	Project/Internship	250	250	500

IE—Internal Examination

UE—University Examination

MASTER OF PHILOSOPHY IN COMPUTER SCIENCE (M.Phil-CS)

2.0 Regulations

2.1 Course Description

The M. Phil- CS is a one-year full time programme and adopts a credit system. Students earn their degree by completing 36 credit points, split among course work, seminar and a thesis. The programme is so designed that students spent their first six months earning a maximum of 18 credits, before proceeding to carry out a research project and a thesis, which can earn them a maximum of 10 credit points.

2.2 Salient Features

The proposed programme in Computer Science has a strong emphasis on trans- disciplinary. The Mphil degree in Computer Science plan to the development of computer science and engineering, and design skills through continual laboratory access. Its focus on work integrated learning includes research oriented industry placement in the final year, ensuring post-graduates are fully prepared for a challenging career in industry, and research and development enterprises.

The discipline major allows significant flexibility and allows you to choose courses outside the main study area to develop a broader knowledge across a number of areas. Students are provided an opportunity to embark on research projects under the supervision of academic staff, while undertaking the M.Phil program.

2.3 Eligibility

Qualifying examination/degree for the admission for the M. Phil- CS degree course is M. Sc/M. C. A./M.Tech in Computer Science/ Information Technology/ Electronics/ Computational Sciences/Geoinformatics or equivalent having minimum of three papers in CS/IT in the qualifying examination with at least 60% aggregate marks, or CGPA of above 6.5 in 10 points, or equivalent on the above mentioned subjects.

2.4 Admissions

Admission to the Course is based on the Institute Admission Test (IAT) conducted by Indian Institute of Information Technology, and Management supervised by CUSAT and/or GATE/NET/JRF qualifying examination score, followed by a technical interview.

2.5 Assessment and Grading System

Following Grade System on Ten-Point Scale will be adopted.

Range of Marks %	Grades	Weightage(G)
90 and above	S-Outstanding	10
80-90	A- Excellent	9
70-80	B - Very Good	8
60-70	C - Good	7
50-60	D - Satisfactory	6
Below 50	F-Failed	0

X-Y means that X is included and Y is excluded.

Overall Grade Point Average (GPA) calculated as follows will indicate performance after each semester:

GPA = (C1G1+C2G2+C3G3+…..Cn Gn)/ (C1+C2+…Cn)

Where C refers to the credit value of the course and G is the Grade weightage. CGPA will be calculated based on the above formula.

2.6 Classification for the Degree will be given as follows:

Classification	*CGPA*
First Class with Distinction	8 and above
First Class	6.5 and above
Second Class	6 and above
Fail	below 6

2.7 Number of Seats

It is proposed to limit the number of seats to 15.

2.8 Mode of Evaluation

A student would be considered to have progressed satisfactorily at the end of a semester if he/she has a minimum of 75% attendance.

There will be internal and external evaluation. In the internal evaluation, student shall be evaluated continuously throughout the semester and marks shall be awarded on the basis of tests and assignments as detailed below:

10 marks are awarded based on assignments given by the teacher.

10 marks are awarded for Seminars/Miniproject/Case study/Review of paper/Viva

There shall be minimum of two class tests and one end semester examination.

The class tests carry a maximum of 20 marks each.

The end semester examination is for a maximum of 60 marks and carries questions from entire syllabi of the course.

The question papers for the end semester examination will be prepared by the teacher who taught the course. The teacher will prepare three sets of question papers. The HOD/Director will select any one of the question paper for the End Semester Examination.

The answer papers will be evaluated by the teacher who taught the paper. Before finalising the result marks will be shown to students. Thesis will be evaluated by internal as well as external examiners.

The external evaluation will be done by CUSAT.   The evaluation of Thesis/Project report will be done externally by CUSAT and the Viva will be done in IIITM-K with the examiner nominated by CUSAT.

There can be a supplementary examination for each subject, conducted within a week of the last examination of the end semester examination. This will be based on the recommendations of the Institute Academic Council, on receiving specific application from students and based on the merit of the case.

The pass minimum is 50% marks of the total of 100 marks (40 marks internal + 60 marks external, with a separate minimum of 45% for the external.

If the candidate fails to secure 50% he/she is failed in the subject and has to repeat the subject in the next possible chance. A pass in the course will entitle the student to acquire the credit value allotted for that particular course. Details of the credit values are given in the course structure. Student will be promoted to the second semester only if he/ she have completed all the papers in the first semester.

2.9 Review of Question Papers and Valuation of Answer Books

At the end of each semester, question papers set for class tests and end semester examination and the scheme of evaluation of answer books be reviewed by the DC. The review report may be placed in the Board of Studies for scrutiny if necessary.

2.10 Grievance Cell

The DC will act as grievance cell where complaints from students on the conduct of class tests, semester examination and valuation methodology can be examined. The student shall make such complaints within a week after the examination to the HOD/Director in writing for scrutiny by the grievance cell.

2.11 Evaluation of the Teachers by the students

For effectiveness and improvement in the delivery of the course, there should be student evaluation of teachers . A format for evaluation may be prepared by the DC. Format given in the NAAC Guide lines can be used for this purpose. The feedbacks have to be confidential and may be discussed with the respective teachers by the HOD/Director, so that he/ she can modify the teaching and learning methodology followed by him/her.

2.12 E-Learning Format in Teaching and Learning

IIITM-K campus has 1 GB connectivity and uses web based e-learning and content management system. . Free software Moodle is used an e-learning platform, teachers and students are encouraged to use online teaching and learning also.

2.13 Course Coordination Committee

Courses in each semester have to be coordinated by a Coordination Committee consisting of the Director/ Head of Departments / School, Course coordinator and all the teachers handling the courses. The committee should meet at least once in a month to monitor the courses. A student representative of the class may be invited as and when necessary to provide feedback from the side of the students.

2.14 Revision of Regulation and Curriculum

The University may, from time to time, amend or change the Regulations, Schemes of Examinations and Syllabus. In case of students already undergoing the course, the change will take effective from the beginning of the following academic year after the changes are introduced and shall cover the part of the course that remains to be completed.

3.0 M. Phil Course Structure and Credits

Course	Subject	L hr/wk	Credit Points	Internal Exam	External Exam	Total
Semester 1						
CSMPh3101	Research Methodology*	5	4	40	60	100
CSMPh3102	Paper 1	5	4	40	60	100
CSMPh3103	Paper 2	5	4	40	60	100
CSMPh3104	Mini Project	..	6	150		
	Total for I semester	15	18	270	180	450
Semester 2						
CSMPh3201 `	Project Dissertation/viva	..	18	150	150	300
	Total for II semester	..	18	150	150	300
	Total for the course		36	420	330	750

Electives

CSMPh3101 Advanced Pattern Recognition

CSMPh3102 Networking and Information Security

CSMPh3103 Magnetic Resonance Imaging and Signal Processing

CSMPh3104 Circuits and Systems

CSMPh3105 Data Structures and Programming

CSMPh3106 Scientific Computing

CSMPh3107 High Performance Computing

CSMPh3108 Digital Signal Processing

CSMPh3109 Object Oriented Software Engineering

CSMPh3110 Soft Computing

CSMPh3111 Computational Linguistics

CSMPh3112 Embedded Systems

CSMPh3113 Data Analytics

CSMPh3114 Digital Image Processing

CSMPh3115 Internet of Things

CSMPh3116 e-Governance and IT Management

CSMPh3116 Kernel Design

M. TECH. (COMPUTER SCIENCE WITH SPECIALIZATION IN CYBER FORENSICS AND INFORMATION SECURITY)

Scheme

Eligibility for admission:

B. E./B. Tech in C. Sc. / I.T./E & C/E & I with a minimum of 60 % marks

Admission procedure:

Based on GATE score/ Rank in DAT

No. of seats: 18. Reservation norms decided by Govt. of Kerala shall apply.

Duration of the course:

The course shall be for a period of 2 years comprising of 4 semesters.

Course structure:

As per the enclosed syllabus

Procedure for completing the course:

As per the directives of CUSAT

Mode of evaluation:

As per the regulations prescribed by CUSAT

Tuition fee:

` 45,000 per semester

Course Structure for M. Tech. (Computer Science with specialization in Cyber Forensics and Information Security)

Course Code	Name of Course	Core/Elective	Credits	Lec.	Lab	Total Marks
(1)	(2)	(3)	(4)	(5)	(6)	(7)
First Semester						
CSCF3101	Engineering Mathematics and Statistics for Forensic Science	C	4	3	3	100
CSCF3102	Computer Algorithms	C	4	3	3	100
CSCF3103	Cyber Forensics Basics	C	4	3	3	100
	Elective 1	E	3	3	0	100
	Elective 2	E	3	3	0	100
	Total for Semester 1		18	15	9	500

(1)	(2)	(3)	(4)	(5)	(6)	(7)

Second Semester

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CSCF3201	Advanced Operating Systems Concepts	C	4	3	3	100
CSCF3202	Network Security	C	4	3	3	100
CSCF3203	Seminar	C	1	0	3	50
	Elective 3	E	3	3	0	100
	Elective 4	E	3	3	0	100
	Elective 5	E	3	3	0	100
	Total for Semester 2					550

Third Semester

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CSCF 3301	Project & Viva Voce	C	18	0	15	400
	Total for Semester 3					400

Fourth Semester

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CSCF3401	Project & Viva Voce	C	18	0	15	500
	Total for Semester 4					500

Total Credits for degree   : 72

List of Electives

Course Code	Name of Course
CSCF3204	Virtual Forensics
CSCF3104	Cryptography
CSCF 3205	Information Security Governance
CSCF3105	File System Forensics Analysis
CSCF3106	Information Security Basics
CSCF3206	Malware Forensics
CSCF3107	Software Forensics
CSCF3207	Windows and Linux Forensics Analysis
CSCF3208	Ethical Hacking

APPENDIX 3

M. TECH. COMPUTER SCIENCE : SPECIALIZATION IN DATA SECURITY

Sl.No.	Course Code	Course Title	Core/ Elective	Credits	Lec.	Lab	Marks Int.	ES	Total
Semester-I									
1	CSD3101	Mathematical Foundations of Computer Science	C	4	4		50	50	100
2	CSD3102	Computer Networking	C	4	3	2	50	50	100
3	CSD3103	Cryptography & Network Security	C	4	3	2	50	50	100
4	-	Elective I	E	3	3	0	50	50	100
5	-	Elective II	E	3	3	0	50	50	100
6	-	Computer Networking Lab	C	1		5	100		100
		Total for Semester I		19	16	9			600

Electives

CSD 3104: Theory of Computation

CSD 3105: Design and Analysis of Algorithms

CSC 3106: Parallel Computer Architecture

Semester-II									
1	CSD 3201	Information Systems Control & Audit	C	4	4	0	50	50	100
2	CSD 3202	Number Theory & Cryptography	C	4	3	3	50	50	100
3	CSD 3203	Seminar	C	1	0	0	50		50
4	-	Elective III	E	3	3	0	50	50	100
5	-	Elective IV	E	3	3	0	50	50	100
6	-	Elective V	E	3	3	0	50	50	100
		Network Security Lab	C	1			100		100
		Total for Semester II		19	16	9			650

Electives

CSD 3204 : Data Compression

CSD 3205 : Data Warehousing & Data Mining

CSD 3206 : Digital Image Processing & Pattern Recognition

CSD 3207 : Information Security

Semester-III									
1	CSD 3301	Project & Viva Voce	C	18	0	15	100	300	200
Semester-IV									
1	CSD 3401	Project & Viva Voce	C	18	0	15	100	350	250
		Total credits							Marks : 1900

Appendix 4

1.   M. Tech. Computer and Information Science

OFFERED IN THE DEPARTMENT OF COMPUTER SCIENCE

PROGRAMME STRUCTURE AND SYLLABUS (2012 ADMISSIONS)

Sl.No.	Course Code	Course Title	Core/ Elective	Credits	Lec.	Lab	Marks
		Semester-I					
1	CSC3101	Mathematical concepts for computer science	C	4	3	3	100
2	CSC3102	Information Retrieval	C	4	3	3	100
3	CSC3103	Algorithms for modern data models	C	4	3	3	100
4	-	Elective I	E	3	3	0	100
5	-	Elective II	E	3	3	0	100
		Total for Semester I		18	15	9	500

Electives

CSC 3104: Wireless Communications & Networking

CSC 3105: Virtualized Systems

CSC 3106: Parallel Computer Architecture

CSC 3107: Intelligent Systems

		Semester-II					
1	CSC 3201	Advanced Data Mining	C	4	3	3	100
2	CSC 3202	Computer Vision	C	4	3	3	100
3	CSC 3203	Seminar	C	1	0	3	50
3	-	Elective III	E	3	3	0	100
4	-	Elective IV	E	3	3	0	100
5	-	Elective V	E	3	3	0	100
		Total for Semester II		18	15	9	550

Electives

CSC 3204: Bioinformatics

CSC 3205: Computational Linguistics

CSC 3206: Adhoc Networks

		Semester-III					
1	CSC 3301	Project & Viva Voce	C	18	0	15	400
		Semester-IV					
1	CSC 3401	Project & Viva Voce	C	18	0	15	500

Total credits for Degree : 72

2. M. Tech Software Engineering

Sl.No.	Course Code	Course Title	Core/ Elective	Credits	Lec.	Lab	Marks
Semester-I							
1	CSS3101	Software Architecture	C	4	3	3	100
2	CSS3102	Agile Project Management	C	4	3	3	100
3	CSS3103	Seminar	C	1	0	3	50
4	-	Elective I	E	3	3	0	100
5	-	Elective II	E	3	3	0	100
6	-	Elective III	E	3	3	0	100
		Total for Semester I		18	15	9	550

Electives

CSS 3104: Patterns in Software Engineering

CSS 3105: Agent based Computing

CSS 3106: Human Computer Interaction

Sl.No.	Course Code	Course Title	Core/ Elective	Credits	Lec.	Lab	Marks
Semester - II							
1	CSS 3201	Business Administration & Technical Communication	C	4	3	3	100
2	CSS 3202	Software Quality Management	C	4	3	3	100
3	CSS 3203	Model Driven Architecture	C	4	3	3	100
4	-	Elective III	E	3	3	0	100
5	-	Elective IV	E	3	3	0	100
		Total for Semester II		18	15	9	500

Electives

CSS 3204: Design of Real Time/Embedded Software

CSS 3205: Social Network Analytics

CSS 3206: Text Mining

CSS 3207: Enterprise Application Integration & Business Process Management

Sl.No.	Course Code	Course Title	Core/ Elective	Credits	Lec.	Lab	Marks
Semester-III							
1	CSS 3301	Project & Viva Voce	C	18	0	15	400
Semester-IV							
1	CSS 3407	Project & Viva Voce	C	18	0	15	500
		Total credits for Degree: 72					

NOTIFICATION

No.Conf.II/2941/02/2012 (7).   *17th December 2013.*

Read: —Not. No. Conf.II/2941/02/2012 (7), dated 31-10-2012.

In exercise of the powers conferred by section 24(ii) read with section 42(1) of CUSAT Act 1986, the Academic Council at its meeting held on 5-7-2012 approved the following:

1. The Regulation and Scheme of Examinations for M.Sc. Nautical Science and Tactical Operations offered at the ND School, one of the schools under Southern Naval Command as in Appendix.

2. The correction in the scheme of examination of the IV semester of M.Sc. (Naval Weapon) course for Regular and Lateral Entry as detailed below:

Ser	Paper	Total HRS	Type	Credit	Scheme of learning		Scheme of Examination			
							Duration of T/P exam HRS	Marks		
	Semester IV				*L*	*P*		*Continuous Evaluation*	*End Term*	*Total*
20410	Tactics Board	80	C	3	80	..	4	90	..	90

3. The amendment made to the Eligibility Criteria in para 5 (a) of the Regulation for "Post Diploma in Armament Systems (8206) conducted by INS Dronacharya, one of the Schools under Southern Naval command, as given below:—

    "Successful completion of PO Q Course of a minimum duration of 25 weeks with a minimum aggregate of 55% marks".

The Syndicate at its meeting held on 24-8-2013 vide item No. 602.30 ratified the action taken by the Vice-Chancellor in having approved the above.

Cochin University P. O.,   (Sd.)
Kochi-22.   *Professor in-charge of Registrar.*

Regulations for M.Sc Nautical Science & Tactical Operations offered by ND School

1.	Programme No.	8503
2.	Programme Name Civil Equal	M.Sc (Nautical Science and Tactical Operations)
3.	Programme Code Naval Equal	LND
4.	Approving Authority	IHQ MoD (N)
5.	Eligibility Criteria for Admission	(a) Officer nominated by IHQ MoD(N)
		(b) A Bachelors Degree in Science B.Sc. (any stream) or BE/ B.Tech degree in any stream or equivalent from a recognised University.

6. Duration

    Semester I & II

    (a) 50 weeks Professional training after B.Sc. degree

    (b) Minimum of 06 weeks on Job training

    Semester III & IV

    48 weeks specialisation   training at ND School.

    (Total Duration 2 years as required for M.Sc. Degree)

7.	Attendance requirement		80% minimum
8.	Nature	(a)	Full Time
		(b)	Based on the credits, GPA will be calculated for Semester III and IV. CGPA will be calculated as per the formula given.
		(c)	With effect for courses which have commenced from 2010.
9.	Approved intake capacity		30
10.	Examination Pattern		Exam paper setter will be other than the Subject Instructor as nominated by Chief Instructor.
	(a) Continuous Examination		1040 Marks of Continuous Examinations which includes Project Work for 50 Marks, Mid Term Board for 50 marks and Term Boards (Oral) for 100 Marks.
	(b) End Term		1035 Marks of End Term Exam
	Total		2075 Marks

11. Grading:

(a) Grades. The following are the grades for performance in individual subject.

Range of Marks	Grades	Weightage
90% and above	S Outstanding	10
80 – 90%	A Excellent	9
70 – 80%	B Very Good	8
60 – 70%	C Good	7
50 – 60%	D Satisfactory	6
Below 50%	F Failure	0

Where [X-Y] means X is included and Y is excluded

(b) *Grade Point Average.*—Performance at the end of the Semester is indicated by Grade Point Average (GPA) calculated as follows for all subjects in the Semesters:—

$$GPA = \frac{G_1C_1 + G_2C_2 + G_3C_3 + \dots GnCn}{C_1 + C_2 + C_3 + \dots\ Cn}$$

(G = grade weightage and C = corresponding subject Credit)

(c) *Cumulative Grade Point Average.*—Overall performance at the end of the course is indicated by Cumulative Grade point average (CGPA) calculated as follows for all subjects:—

$$CGPA = \frac{C_{III}(GPA_{III}) + C_{IV}(GPA_{IV})}{C_{III} + C_{IV}}$$

(C_{III} and C_{IV} credit for Semester III and IV and GPA_{III} and GPA_{IV} grade point average for Semester III and Semester IV)

(d) The classification on degree would be as follows:—

Classification	CGPA
First Class with Distinction	8 and above
First Class	6.5 and above
Second Class	6 and above

(e) Details of the course and credit points are as follows:—

Course Code	Paper	C/E	Credit
Semester III			
LND 5301	General Navigation – 1	C	4
LND 5302	Advanced Rel-Vel	C	4
LND 5303	Ship Handling	C	4
LND 5304	Navaids and Instruments	E	2
LND 5305	Tides	E	1
LND 5306	Gyro Compass	E	1
LND 5307	Rules of the Road	A	-
LND 5308	Radar Theory	E	2
LND 5309	Helo Control	C	4
LND 5310	Chart Work	C	2
LND 5311	Astro Navigation	C	2
LND 5312	Air Direction – 1	C	4
LND 5313	Magnetic Compass	C	1
LND 5314	Networking	A	..
		C + E	25 + 6 = 31
Semester IV			
LND 5401	Ship Borne Equipment	E	1
LND 5402	Air Direction – II	C	4
LND 5403	AIO	C	3
LND 5404	General Navigation – II	C	2
LND 5406	Radar Miscellaneous	E	2
LND 5407	Departmental Duties	E	1
LND 5408	Tactics – I	C	4
LND 5409	Tactics – II	C	4
LND 5410	Tactics – III	C	2
LND 5411	Air Direction (Lucknow)	C	2
LND 5412	(Met & Oceanography) Hydro School	E	2
LND 5413	SNOM	E	2
LND 5414	Communicative English	A	-
LND 5415	Marine Navigation	C	3
LND 5416	Mid Term Board	C	3
LND 5417	Final Board	C	4
LND 5418	Project	C	4
		C + E	35 + 08 = 43

Scheme of Instructions and Examination Programme No. 8503 (LND)

M.Sc. in Nautical Science and Tactical Operations

Sub Code	Subject	Total Hours	C/E	Credit	Scheme of Teaching		Duration of T/P Exam in hours	Scheme of Examination (Marks)		
					L	P		CE	End Term	Total
			Semester III							
LND 5301	General Navigation - 1	73	C	4	66	7	3	50	50	100
LND 5302	Advanced Rel-Vel	79	C	4	75	4	3	25	50	75
LND 5303	Ship Handling	103	C	4	75	28	5	75	100	175
LND 5304	Navaids and Instruments	28	E	2	25	3	1	25	50	75
LND 5305	Tides	23	E	1	20	3	1	25	50	75
LND 5306	Gyro Compass	24	E	1	20	4	1	25	50	75
LND 5307	Rules of the Road	23	A	-	20	3	2	P/F	P/F	P
LND 5308	Radar Theory	24	E	2	20	4	2	25	50	75
LND 5309	Helo Control	80	C	4	75	5	4	50	75	125
LND 5310	Chart Work	41	C	2	36	5	1	25	25	50
LND 5311	Astro Navigation	33	C	2	30	3	2	50	50	100
LND 5312	Air Direction – I	90	C	4	84	6	2	25	25	50
LND 5313	Magnetic Compass	19	C	1	18	1	1	25	25	50
LND 5314	Computer Networking	27	A	-	22	5	1	P/F	P/F	P
			C + E	25 + 6 = 31			Sub Total	425	600	1025
			Semester IV							
LND 5401	Ship Borne Equipment	23	E	1	16	7	1	50	50	100
LND 5402	Air Direction - II	162	C	4	12	150	3	50	50	100
LND 5403	AIO	56	C	3	52	4	1	75	75	150
LND 5404	General Navigation-II	80	C	2	5	75	2	25	25	50
LND 5406	Radar Miscellaneous	24	E	2	22	2	1	25	25	50
LND 5407	Departmental Duties	09	E	1	7	2	1	10	15	25
LND 5408	Tactics - I	120	C	4	90	30	3	40	40	80
LND 5409	Tactics - II	120	C	4	90	30	3	40	40	80
LND 5410	Tactics - III	40	C	2	30	10	2	20	20	40
LND 5411	Air Direction (Lucknow)	50	C	2	30	20	3	10	15	25
LND 5412	(Met & Oceanography) - I	26	E	2	22	4	1	10	15	25
LND 5413	(Met & Oceanography) - II	26	E	2	22	4	1	10	15	25
LND 5414	Communicative English	11	A	..	11	0	0	P/F	P/F	P
LND 5415	Fleet Marine Navigation	52	C	3	45	7	1	50	50	100
LND 5416	Mid Term Board	27	C	3	0	0	2	50	..	50
LND 5417	Final Board	35	C	4	0	0	2	100	..	100
LND 5418	Project	50	C	4	50	0	3	50	..	50
			C + E	35 + 8 = 43			Sub Total	615	435	1050
	Total Duration		1632 hrs (48 weeks)		60 + 14 = 74		Total Marks			2075

NOTIFICATION

No. Conf.II/2941/02/2012 (8).   *17th December 2013.*

Read: —Not. No. Conf.II/2941/02/2012 (8). dated 31-10-2012.

In exercise of the powers conferred by section 24(ii) read with Section 42(1) of CUSAT Act 1986, the Academic Council at its meeting held on 5-7-2012 approved the following:

1. The Revised Regulations and Scheme of Examination for LL .M. in Maritime Law with effect from 2012 admissions as in Appendix-1.

2. The Revised Regulations and Scheme of Examination for LL.M. in corporate Governance and Securities Law with effect from 2012 admissions, as in Appendix-2.

3. The revised Regulations and Scheme of Examination for LL. B (3 year) course with effect from 2012 admissions as in Appendix-3.

4. The amendments to be made to the BBA. LL.B (Hons.) Regulations 2009; with effect from 2009 admissions.

Existing	*Revised and approved*
Scheme of Examination Seventh Semester	Scheme of Examination Seventh Semester
C.M. 19 Organizational Dynamics Eighth	C.M. 20 Management Project Eighth
Semester C.M. 20 Management Project	Semester C.M. 19 Organizational Dynamics

The Syndicate at its meeting held on 24-8-2013 vide item No. 602.30 ratified the action taken by the Vice-Chancellor in having approved the above.

Cochin University P. O.,   (Sd.)
Kochi-22.   *Professor in-charge of Registrar.*

APPENDIX–I

FACULTY OF LAW

Regulations and Syllabus For L.L.M.

(**Maritime Law**)

(Credit System)

Regulations

1. *Eligibility for Admission to the Course*:—Candidates for admission to the LL.M. Degree course with specialization in Maritime Law, shall be required to have passed the Bachelor's Degree examination in Law of any of the Universities in Kerala or an examination of any other University accepted by the Syndicate as equivalent thereto.

2. *Procedure for selection*:—Admission to the LL.M in Maritime law course shall be made from the rank list prepared by the University for LL.M course on the basis of score obtained by the candidate in All India Common Admission Test conducted by the university annually.

In making selection for admission, the reservation rules prescribed by the university from time to time shall be applied.

3. *Eligibility for the Degree*:—No candidate is eligible for the Degree of Master of Laws in Maritime Law, unless he has undergone the prescribed Core courses of study in the School of Legal Studies under the University, for not less than two academic years and has passed the prescribed examinations according at least 72 credits out of which at least 60 credits could be in core courses offered by the School of Legal Studies.

4. *Duration and contents of the course*:—

(i) The course for the Master of Laws (LL.M.) Degree in Maritime Law of the University is of two academic years consisting of four semesters. Each semester will be of 16 to 18 weeks of teaching followed by University Examination.

(ii) A student shall, in the course of four semesters undergo instruction in Core Courses consisting of 60 credits and Elective Courses consisting of 12 credits as follows:

Total Credit – 72

Core Courses		*60 credits*
(i)	Law and Society (100 marks)	4 credits
(ii)	Judicial Process (100 marks)	4 credits
(iii)	Legal Education & RM (Theory) (50% of the credit will be through written examination and 25% for the legal education practical and 25% for Research methodology practical examination)	4 credits
(iv)	International Law of the Sea	4 credits
(v)	Admiralty and Maritime jurisdiction	4 credits
(vi)	Carriage of Goods by Sea	4 credits
(vii)	Marine Insurance	4 credits
(viii)	Ancillary Shipping Contracts	4 credits
(ix)	Marine Environmental Law	4 credits
(x)	Seminars (2 credits each in the first second and third semester)	6 credits
(xi)	Dissertation & Viva voce	16 credits
(xii)	Research Methodology Practical	2 credits
Elective Courses		12 credits

The School of Legal Studies shall notify the elective courses proposed to be offered in the beginning of the Academic year. This will facilitate the students to choose the elective courses in advance. The students shall have the option to substitute the elective courses by equivalent courses from the School or other Departments/Schools.

The academic calendar for each year giving details of the courses offered in each semester will be notified in the beginning of the year for each batch of students admitted for the LL.M Course in Maritime Law.

Proposed Elective Courses

- Maritime Employment
- Ownership & Management of Ship
- Maritime Safety and Law of Collision
- Law of Ports and Harbours

Examinations:—

(i) There shall be a University Examination at the end of each semester. For each course, 50 per cent of marks will be set apart for sessional work by internal assessment and 50 per cent for University Examination.

(ii) The internal assessment shall be based on an overall assessment of the performance of the student during the semester, such as performance in the test papers and home assignment, participation in the class discussions, seminars and regularity in attendance.

(iii) (a) At the end of the third semester there shall be a practical examination conducted by the University on teaching legal subjects which carries 2 Credits. For the practical examination in Legal Education the candidate should conduct the class on a subject assigned to him. The duration of the class shall be 30 to 40 minutes. The candidate is expected to answer the questions relating to the subject put to him by the members of the class as well as by the examiners. Marks for the practical shall be awarded on the basis of the class conducted by the candidate and on the basis of his participation in the classes conducted by other candidates.

(b) At the end of the third semester there shall be a Research Methodology practical examination conducted by the University, which will carry 2 credits. Students are expected to present the research design of the topic chosen for dissertation.

5. *Dissertation:—*

- A Student should select the topic for dissertation at the beginning of the 3rd semester and got approved by the Director School of Legal Studies. The student shall commence the work at the beginning of the third semester and complete the identification and collection of materials by the end of third semester. The dissertation shall be submitted within 5 days of closure of the 4th semester. The Dissertation & viva voce shall carry 16 credits.

- The dissertation shall be prepared under the guidance of teachers entrusted by the Department Council. The topic of the dissertation, methodology, pattern of presentation etc. etc., shall be determined by the teachers concerned in consultation with the department council.

1. The teachers entrusted with the supervision of the dissertation work shall help the student in identifying, analyzing and presentation of the problem in the dissertation. The teachers input in this should be equivalent to the work he might put in teaching work.

2. The dissertation work may be organized by the Departmental Council depending upon the infrastructural facilities and availability of faculty in every year.

3. Unless and until the supervising teachers approve and signs up the dissertation the candidate shall not be permitted to submit the dissertation.

4. There shall be a viva voce examination based on dissertation work.

5. The written work consists of 14 credits and 2 credits for the viva voce examination. The grades obtained for the written work and the viva voce shall be added and the aggregate grade obtained for the dissertation.

6. The minimum grade for passing the dissertation shall be 'D'.

7. A candidate who has failed to secure the minimum marks for the dissertation may submit following the above a new or revised dissertation before the commencement of the LL.M Degree examination of the next year or the year in which he proposes to sit for the LL.M Maritime law Examination within a period of three years from the year of completion of the course.

6. *Classification:*

The following Grades suggested by the UGC will be awarded based on the overall performance in each course.

Range of marks		Grade	Weightage
90%		S- Outstanding	10
80	90 %	A- Excellent	9
70	80 %	B-Very Good	8
60	70 %	C-Good	7
50	60 %	D-Satisfactory	6
50%		Failed	0

Overall performance at the end of the semester will be indicated by Grade Point Average (GPA) calculated as follows:

$$GPA = \frac{G1\ C1 + G2\ C2 + G3\ C3 + \ldots\ldots\ldots\ldots\ldots Gn\ Cn}{C1 + C2 + C3 + \ldots\ldots\ldots\ldots\ldots Cn}$$

Where 'G' refers to the grade weightage and 'C' refers to the credit value of corresponding course undergone by the student.

Classification	CGPA
First Class with Distinction	8 and above
First Class	7 and above
Second Class	6 and above

In the final mark list along with the Grade point average percentage of marks obtained by the candidate might be noted in bracket.

7. *Revision of Regulations and Curriculum.*—The University may from time to time revise, amend or change the Regulations, scheme of Examinations and the syllabus. In the case of students already undergoing the course the changes will take effect from the beginning of the following academic year after the changes are introduced, and shall cover the part of the course that remains to be completed.

APPENDIX-2

FACULTY OF LAW

Regulations And Syllabus For LL. M

(Corporate Governance and Securities Law)

(Credit System)

1. *Eligibility for Admission to the Course*:—Candidates for admission to the LL.M. Degree course with specialization in Corporate Governance & Securities Law, shall be required to have passed the Bachelor's Degree Examination in Law of any of the Universities in Kerala or an examination of any other University accepted by the Syndicate as equivalent thereto.

2. *Procedure for selection*:—Admission to the LL. M in Maritime Law course shall be made from the rank list prepared by the University for LL.M course on the basis of score obtained by the candidate in All India Common Admission Test conducted by the university annually.

   In making selection for admission, the reservation rules prescribed by the university from time to time shall be applied.

3. *Eligibility for the degree*:— No candidate is eligible for the Degree of Master of Laws in Corporate Governance and Securities Law, unless he has undergone the prescribed Core courses of study in the School of Legal Studies under the University, for not less than two academic years and has passed the prescribed examinations according at least 72 credits out of which at least 60 credits could be in core courses offered by the School of Legal Studies.

4. *Duration and contents of the course:—*

   (i) The course for the Master of Laws (LL.M.) Degree in Corporate Governance & Securities Law of the University is of two academic years consisting of four semesters. Each semester will be of 16 to 18 weeks of teaching followed by University Examination.

   (ii) A student shall, in the course of four semesters undergo instruction in Core Courses consisting of 60 credits and Elective Courses consisting of 12 credits as follows:

Total Credit – 72

Core Courses	*60 credits*
(i) Law and Society	4 credits
(ii) Judicial Process	4 credits
(iii) Legal Education & RM	4 credits

   (50% of the credit will be through written examination and 25% for the legal education practical and 25% for Research methodology practical examination)

(iv) Foundations of Contractual liability	4 credits
(v) Law of Corporate Governance	4 credits
(vi) Law of Corporate Finance	4 credits
(vii) Securities Law	4 credits
(viii) Law of Securities Intermediaries	4 credits

(ix)	Corporate Re-organization	4 credits
(x)	Seminars	6 credits
(xi)	Dissertation & Viva Voce	16 credits
(xii)	Research Design Presentation	2 credits

Elective Courses   *12 credits*

     The School of Legal Studies shall notify the elective courses proposed to be offered in the beginning of the Academic year. This will facilitate the students to choose the elective courses in advance. The students shall have the option to substitute the elective courses by equivalent courses from the School or other Departments/Schools.

     The academic calendar for each year giving details of the courses offered in each semester will be notified in the beginning of the year for each batch of students admitted for the LL.M Course in Corporate Governance & Securities Law.

   Proposed Elective Courses

   • Mutual Fund & collective investment Scheme

   • Investor Protection Laws

   • Corporate Bankruptcy & Insolvency

   • Law on Shareholder protection

   • Law on Corporate Formations

Examinations:—

   (i)   There shall be a University Examination at the end of each semester. For each course, 50 per cent of marks will be set apart for sessional work by internal assessment and 50 per cent for University Examination.

   (ii) The internal assessment shall be based on an overall assessment of the performance of the student during the semester, such as performance in the test papers and home assignment, participation in the class discussions, seminars and regularity in attendance.

   (iii) (a) At the end of the third semester there shall be a practical examination conducted by the University on teaching legal subjects which carries 2 Credits. For the practical examination in Legal Education the candidate should conduct the class on a subject assigned to him. The duration of the class shall be 30 to 40 minutes. The candidate is expected to answer the questions relating to the subject put to him by the members of the class as well as by the examiners. Marks for the practical shall be awarded on the basis of the class conducted by the candidate and on the basis of his participation in the classes conducted by other candidates.

   (b) At the end of the third semester there shall be a Research Methodology practical examination conducted by the University, which will carry 2 credits. Students are expected to present the research design of the topic chosen for dissertation.

1. *Dissertation*:

   (i)   A Student should select the topic for dissertation at the beginning of the 3rd semester and got approved by the Director School of Legal studies. The student shall commence the work at the beginning of the third semester and complete the identification and collection of materials by the end of third semester. The dissertation shall be submitted within 5 days of closure of the 4th semester. The Dissertation & Viva voce shall carry 16 credits.

   (ii) The dissertation shall be prepared under the guidance of teachers entrusted by the Department Council. The topic of the dissertation, methodology, pattern of presentation etc. etc., shall be determined by the teachers concerned in consultation with the department council.

   (iii) The teachers entrusted with the supervision of the dissertation work shall help the student in identifying, analyzing and presentation of the problem in the dissertation. The teachers input in this should be equivalent to the work he might put in teaching work.

(iv) The dissertation work may be organized by the Departmental Council depending upon the infrastructural facilities and availability of faculty in every year.

(v) Unless and until the supervising teachers approve and signs up the dissertation the candidate shall not be permitted to submit the dissertation.

(vi) There shall be a viva voce examination based on dissertation work.

(vii) The written work consists of 14 credits and 2 credits for the viva voce examination. The grades obtained for the written work and the viva voce shall be added and the aggregate grade obtained for the dissertation.

(viii) The minimum grade for passing the dissertation shall be 'D'.

(ix) A candidate who has failed to secure the minimum marks for the dissertation may submit following the above a new or revised dissertation before the commencement of the LL.M Degree examination of the next year or the year in which he proposes to sit for the LL.M Corporate Governance & Securities law Examination within a period of three years from the year of completion of the course.

2. *Classification :*

The following Grades suggested by the UGC will be awarded based on the overall performance in each course.

Range of marks	Grade	Weightage
90%	S-Outstanding	10
80 90 %	A- Excellent	9
70 80 %	B-Very Good	8
60 70 %	C-Good	7
50 60 %	D-Satisfactory	6
50%	Failed	0

Overall performance at the end of the semester will be indicated by Grade Point Average (GPA) calculated as follows:—

$$GPA = \frac{GICI + G2C2 + G3C3 + \ldots\ldots\ldots\ldots\ldots GnCn}{C1+C2+C3+\ldots\ldots\ldots\ldots\ldots\ldots Cn}$$

Where 'G' refers to the grade weightage and 'C' refers to the credit value of corresponding course undergone by the student.

Classification	CGPA
First class with Distinction	8 and above
First Class	7 and above
Second Class	6 and above

In the final marklist along with the Grade point average percentage of marks obtained by the candidate might be noted in bracket.

3. Revision of Regulations and Curriculum —The University may from time to time revise, amend or change the Regulations, scheme of Examinations and the syllabus. In the case of students already undergoing the course the changes will take effect from the beginning of the following academic year after the changes are introduced, and shall cover the part of the course that remains to be completed.

Scheme of Examination

Code	Name of Paper	Duration of Examination	Weightage		Total Credits
			Internal	External	
(1)	(2)	(3)	(4)	(5)	(6)

First Semester

Code	Name of Paper	Duration of Examination	Internal	External	Total Credits
	Core-I	3 hours	50%	50%	4 credits
	Core-II	3 hours	50%	50%	4 credits
	Core-III	3hours	50%	50%	4 credits
	Elective	3hours	50%	50%	4 credits
	Seminar		100%	*****	2 credits
				Total	18 credits

Second Semester

Code	Name of Paper	Duration of Examination	Internal	External	Total Credits
	Core-IV	3 hours	50%	50%	4 credits
	Core-V	3 hours	50%	50%	4 credits
	Core-VI	3 hours	50%	50%	4 credits
	Elective-II	3 hours	50%	50%	4 credits
	Seminar		100%	*****	2 credits
				Total	18 credits

Third Semester

Code	Name of Paper	Duration of Examination	Internal	External	Total Credits
	Core-VII	3 hours	50%	50%	4 credits
	Core-VIII	3 hours	50%	50%	4 credits
	Elective-III	3 hours	50%	50%	4 credits
	Research Design presentation		**	100%	2credits
	Seminar		100%	****	2 credits
				Total	16 credits

Fourth Semester

Code	Name of Paper	Duration of Examination	Internal	External	Total Credits
	Core-IX	3 hours	50%	50%	4 credits
	Dissertation & Viva voce	*******	****	100%	16 credits
				Total	20 credits

Any of the core courses can be given in any semester.

_{APPENDIX-3}

LL.B. COURSE (3 YEAR)

Regulation for Bachelors Degree in Law (LL.B.)

1. The Bachelors Degree in Law (LL. B) shall consist of regular course of study for a minimum period of six semester after graduation.

2. The course of study shall be by regular attendance at the requisite number of lectures, tutorials and practical training.

3. The medium of instruction shall be English.

Eligibility

4. Any person who has passed the Bachelors Degree with 40% marks in the aggregate in any discipline of a University recognized by the Cochin University of Science and Technology can apply for admission to the course. SC and ST candidates are eligible for relaxation of 5% of marks in their qualifying degree. Candidates who have appeared for the qualifying examination may also apply in anticipation of their results. However, the mark lists obtained in the qualifying examination shall be produced at the time of admission. Those who fail to produce marklist shall not be considered for admission.

Procedure for selection

5. Selection shall be made on the basis of the entrance test conducted by the Law School/University.

6. In making selection for admission, the pattern of reservation prescribed by the University shall be followed.

Curriculum

7. The curriculum shall consist of 20 compulsory, 6 optional and 4 compulsory practical training papers prescribed by the Bar Council of India.

8. The optional papers will be chosen and offered by the school from among the optional paper in the syllabus.

A.   Compulsory Courses in Law are:

1. Jurisprudence (Legal Method, Indian Legal System and Basic Theory of Law)

2. General Principles of Contract (Law of Contract-I)

3. Special Contracts (Law of Contract-II)

4. Law of Torts and Motor Vehicles Accidents

5. Family Law-I

6. Family Law-II

7. Law of Crimes

8. Law of Criminal Procedure

9. Constitutional Law-I

10. Constitutional Law-II

11. Property Law

12. Law of Evidence

13. Civil Procedure Code and Limitation Act

14. Administrative Law

15. Company Law

16. Public International Law

17. Principles of Taxation Law

18. Environmental Law

19. Labour Law- I (Trade Unions and Industrial Disputes)

20. Labour Law -II (Social Securities Law)

B.   Compulsory Clinical Courses in Law

21.   Drafting, Pleading and Conveyancing

22.   Professional Ethics and Professional Accounting System

23.   Alternative Dispute Resolution

24.   Moot Court Exercise and Internship

General Elective Courses in Law:

1.   International Trade Law

2.   Criminology, Penology and Victimology

3.   Air and Space Law

4.   Law and Medicine

5.   Women and Law

6.   Law Relating to Child

7.   Law, Poverty and Development

8.   Interpretation of Statutes

9.   Science, Technology and Law

10.   Forensic Science and Medical Jurisprudence

11.   Private International Law

12.   Land Utilization Law

13.   International Humanitarian and Refugee Law

14.   Law of the Sea

15.   Laws Relating to Armed Forces

16.   Laws Relating to Agriculture

17.   Law of Local Self Government

18.   Disability Law

19.   Law Governing Scientific Research

20.   Law Relating to Ships

21.   Law on Building and Engineering Contracts

22.   Securities Laws

23.   Marine Safety Law

24.   Healthcare Law

25.   Law of Co-operative Societies

26.   Disaster Management Law

27.   Human Rights Law

28.   Intellectual Property Laws

Examination

9.   There shall be a University examination at the end of each semester. Candidates having not less than 80% attendance in each paper shall alone be admitted to the examination. 10% of the required percentage of attendance in each paper may be condoned by the Vice Chancellor on medical grounds.

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10. For each written paper carrying 100 marks, 50% shall be set apart for being awarded by way of internal assessment and 50% marks for the written external examination. Internal assessment shall be made on the basis of overall performance during the semester such as regularity of attendance, preparation and presentation of assignments, test paper scoring and class room participation.

11. The performance in practical training papers shall be assessed internally.

12. A candidate who is registered and is entitled to be presented for the examination in a semester shall be entitled to pursue the studies for the next semester of the course.

13. There shall be a viva-voce at the end of sixth semester examination which may cover all the courses taught for the whole programme. The viva board shall consist of the Chairman and two examiners, at least one of whom shall be an external examiner.

Pass minimum and classification

14. A candidate who secures not less than 50% of the total marks in a paper shall be declared to have passed the examination in that paper.

15. A candidate who passes in all the papers and secures 50% or more of the aggregate marks for all the six semesters but less than 60% shall be declared to have passed the whole examination in second class.

16. Successful candidates with 60% marks and above in the aggregate for all the six semesters shall be declared to have passed the whole examination in first class.

17. Successful candidates with seventy-five percentage marks or above in the aggregate for all the six semesters shall be declared to have passed the examination with distinction provided he/she passes all the examinations within the period of whole programme. Ranking shall be done on the basis of marks obtained by the candidate in the whole examination passed in the first chance.

Scheme of Examination

Code	Name of Paper	Duration of Examination	Marks		Total
			Internal	External	
(1)	(2)	(3)	(4)	(5)	(6)
First Semester					
C.1	Law of Torts including M V Accidents and Consumer Protection Laws	3 hours	50	50	100
C.2	General Principles of Contract	3 hours	50	50	100
C.3	Law of Crimes	3 hours	50	50	100
C.4	Family Law—I	3 hours	50	50	100
E.1	Elective—I	3 hours	50	50	100
		Total	**250**	**250**	**500**
Second Semester					
C.5	Special Contracts	3 hours	50	50	100
C.6	Constitutional Law—I	3 hours	50	50	100
C.7	Administrative Law	3 hours	50	50	100
C.8	Family Law—II	3 hours	50	50	100
E.2	Elective—II	3 hours	50	50	100
		Total	**300**	**300**	**600**

(1)	(2)	(3)	(4)	(5)	(6)

Third Semester

C.9	Jurisprudence (Legal Method, Indian Legal System and Basic Theory of Law)	3 hours	50	50	100
C.10	Constitutional Law—II	3 hours	50	50	100
C.11	Law of Evidence	3 hours	50	50	100
E.3	Elective—III	3 hours	50	50	100
P. I	Drafting, Pleading and Conveyance		100	**	100
		Total	**300**	**200**	**500**

Fourth Semester

C.12	Law of Criminal Procedure	3 hours	50	50	100
C.13	Civil Procedure Code and Limitation Act	3 hours	50	50	100
C.14	Company Law	3 hours	50	50	100
E.4	Elective—IV	3 hours	50	50	100
P. II	Professional Ethics & Professional Accounting System		100	**	100
		Total	**300**	**200**	**500**

Fifth Semester

C.15	Property Law	3 hours	50	50	100
C.16	Public International Law	3 hours	50	50	100
C.17	Labour Law—I	3 hours	50	50	100
E.5	Elective—V	3 hours	50	50	100
P 3	Alternative Dispute Resolution		100	**	100
		Total	**300**	**200**	**500**

Sixth Semester

C.18	Environmental Law	3 hours	50	50	100
C.19	Principles of Taxation Law	3 hours	50	50	100
C.20	Labour Law—II	3 hours	50	50	100
E.6	Elective—VI	3 hours	50	50	100
P. 4	Moot Court Exercise and Internship		100	**	100
V. V.	Viva-Voce			100	100
		Total	**300**	**300**	**600**

NOTIFICATION

No. Conf. II/2941/02/2012 (9).   *17th December 2013.*

   Read:—Not. No. Conf. II/2941/02/2012 (9), dated 31-10-2012.

      In exercise of the powers conferred by section 24(ii) read with section 42(1) of the CUSAT Act 1986, the Academic Council at its meeting held on 5-7-2012 approved the following:

1.   The Scheme of Examinations and Syllabi for the M. Tech Programmes in Production Engineering and Thermal Engineering to be offered in the Recognized Institutions of CUSAT as in Appendix—1.

2.   The Regulations for M. Tech (Regular) courses offered under Faculty of Engineering in recognized institutions with effect from 2012 Admissions, as in Appendix-2.

3.   That there shall be 4 core courses and 2 electives each in I and II Semesters of the M. Tech (Regular) courses in University Departments/Schools under Faculty of Engineering Semesters III and IV will be devoted to Project (Compulsory) and Industrial training (Optional)

   The number of credits for various semesters shall be

Semester—I	:	26
Semester—II	:	26
Semester—III	:	10
Semester—IV	:	14
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   Semesters I and II shall consist of Laboratory work and seminar in addition to core courses and electives.

4.   The Scheme for M.Tech Civil Engineering (Specialization : Geotechnical Engineering) as in Appendix—3.

5.   The Eligibility Requirement for admissions and schemes of Examination for the M. Tech Programmes in Information Technology (Specialization : Software Design) and M. Tech Mechanical Engineering (Specialization : Thermal Engineering) as in Appendix—4.

   The Syndicate at its meeting held on 24-8-2013 vide item No. 602.30 ratified the action taken by the Vice-Chancellor in having approved the above.

Cochin University P. O.,   (Sd.)
Kochi-22.   *Prof. In-charge of Registrar.*

APPENDIX—1

M.TECH DEGREE IN MECHANICAL ENGINEERING

(Specialization in Production Engineering)

(Recognised Institutions)

Scheme

Sl. No.	Course Code	Course title	Core/ Elective	Creidt	Lect	Lab	Marks		
							Int. Asst.	LS Exam.	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
			Semester-1						
1	MEP 3101	Applied Mathematics	C	3	4	..	50	50	100
2	MEP 3102	Advanced Matrerials Technology	C	3	4	..	50	50	100
3	MEP 3103	Metal Forming Theory	C	3	4	..	50	50	100
4	MEP 3104	Metal Cutting Theory & Practice	C	3	4	..	50	50	100
5	MEP 3105	Elective—I	E	3	4	..	50	50	100
6	MEP 3106	Elective—II	E	3	4	..	50	50	100
7	MEP 3107	Seminar—I	..	1	..	2	50	..	50
8	MEP 3108	Laboratory—I Production Engineering Lab	..	1	..	3	50	..	50
	Total for Semester-1		..	**20**	**24**	**5**	**400**	**300**	**700**

Electives

MEP 3015 : Elective—I

      MEP 3105 A : Special Purpose Machine Tools

      MEP 3105 B : Design for Manufacture

      MEP 3105 C : Microfabrication

MEP 3016 : Elective—II

      MEP 3106 A : Quality Engineering & Management

      MEP 3106 B : Industrial Tribology

      MEP 3106 C : Vibration & Noise in Machine Tools

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

Semester-2

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	MEP	Computer 3201 Aided Product Design	C	3	4	..	50	50	100
2	MEP	Advances in 3202 CNC Machine	C	3	4	..	50	50	100
3	MEP	Computer 3203 Integrated Manufacturing	C	3	4	..	50	50	100
4	MEP	Advances in 3204 Casting & Welding	C	3	4	..	50	50	100
5	MEP	Elective—III 3205	E	3	4	..	50	50	100
6	MEP	Elective—IV 3206	E	3	4	..	50	50	100
7	MEP	Seminar—II 3207	..	1	..	2	50	..	50
8	MEP	Laboratory—II 3208 CAD/Cam Lab	..	1	..	3	50	..	50
	Total for Semester-2		..	20	24	5	400	300	700

Electives

MEP 3205 : Elective—III

MEP 3205 A : Total Quality Management

MEP 3205 B : Manufactuting System Design

MEP 3205 C : Design of Experiments

MEP 3016 : Elective—III

MEP 3206 A : Modern Machining Processes

MEP 3206 B : Maintenance & Reliability Engineering

MEP 3206 C : Mechatronics

Sl. No.	Course code	Course Title	Credits

Semester-3

1	MEP 3301	Project Phase—I Project Progress Evaluation	15
	Total for Semester-3		**15**

Semester-4

1	MEP 3401	Project Phase—II Dissertation Evaluation Viva-Voce	17
	Total for Semester-4		**17**

M . TECH DEGREE IN MECHANICAL ENGINEERING

Specialization in Production Engineering

Sl. No.	Semester	Credits	Marks		Total
			Internal	External exam	
(1)	(2)	(3)	(4)	(5)	(6)
1	Semester—I	20	400	300	700
2	Semester—II	20	400	300	700
3	Semester—III	15	..	..	..
4	Semester—IV	17	..	..	..
	Total for Course	**72**	**800**	**600**	**1400**

M. TECH (FULL TIME) DEGREE COURSE IN MECHANICAL ENGINEERING

(Specialization: Thermal Engineering)

(Recognized Institutions)

Sl. No.	Course code	Course Title	Credits
(1)	(2)	(3)	(4)
		Semester—I	
1	TE 101	Computational Methods for Thermal Engineering	3
2	TE 102	Applied Thermodynamics	3
3	TE 103	Advanced Heat Transfer	3
4	TE 104	Advanced Fluid Mechanics	3
5		Elective—1	3
6		Elective—2	3
7	TE 111	Thermal Engineering Laboratory	1
8	TE 112	Seminar—I	1
		Total credits for Semester—I	**20**

Elective—I

1. TE 105 Solar Thermal Engineering

2. TE 106 Advanced Refrigeration & Air-conditioning

3. TE 107 Environmental Pollution and Control

Elective—II

4. TE 108 Alternative Fuels for I. C Engines

5. TE 109 Modern Energy Conversion Systems

6. TE 110 Theory and Technology of Fuel Cells

(1)	(2)	(3)	(4)
		Semester—II	
1	TE 201	Principles of Turbomachinery	3
2	TE 202	Computational Methods in Fluid Flow and Heat Transfer	3
3	TE 203	IC Engines & Combustion	3
4	TE 204	Propulsion	3
5		Elective—3	3
6		Elective—4	3
7	TE 211	Computational Lab	1
8	TE 212	Seminar—II	1
		Total credits for semester—II	**20**

Elective—III

1. TE 205 Design of Heat Transfer Equipments

2. TE 206 Analysis of Thermal Power Plant Cycles and Systems

3. TE 207 Cryogenic engineering

Elective—IV

4. TE 208 Measurements in Thermal Sciences

5. TE 209 Energy Conservation and Management

6. TE 210 Research Methodology

Semester—III

1	TE 301	Project Phase—I	15
		Total credits for semester—III	**15**

Semester—IV

1	TE 401	Project Phase—II	17
		Total credits for semester—IV	**17**
			Credits
		Grand total credits (Semester I to IV)	**72**

4. Conclusion

Institute of Human Resources Development being a Government of Kerala Establishment is keeping its values high to turn Kerala into a knowledge society with a sustainable economic growth. The admission to all the engineering colleges under IHRD is through government allotment. This allows the meritorious students to get admission to our colleges as per the government regulations and fees structure laid down by the directions of Government of Kerala. And also, 50% seats are purely merit seats having lower fees structure. So starting a new P G course **in Thermal Engineering under Department of Mechanical Engineering at College of Engineering Adoor** will also adds to the concern and commitment of the government to the common people.

APPENDIX—2

Regulations for M. Tech (Regular) Courses offered under Faculty of Engineering in Recognized Institutions

1.   **Eligibility for Admission**

    1. At least 60% marks or CGPA 6.5 in 10 point scale in B.E/B.Tech in the respective branch of engineering or equivalent or any other branch of engineering which is approved as the eligibility criteria for the particular course. For candidates belonging to SC/ST category, the eligibility criteria shall be as per Government of Kerala norms.

    2. Valid GATE score with eligibility for fellowship (Sponsored and SC/ST candidates may have relaxation to this requirement, as per rules).

    3. In the absence of candidates with valid GATE, selection will be based on merit as per the guidelines of Government of Kerala.

2.   **Selection**

Selection for admission will be based on the candidates score in GATE. In the absence of candidates with valid GATE, selection will be based on merit as per the guidelines of Government of Kerala. Seats are reserved for SC/ST and other backward communities as per Kerala Government rules. Upto 25% of the sanctioned seats can be reserved for sponsored candidates working in educational institutions/ Research Centres approved by AICTE/ UGC/Govt./ Universities and Industry.

3.   **Intake**

Intake shall be limited to a maximum of 24 seats for each course.

4.   **Course Structure**

    4.1   The number of credits (total) in I, II, III and IV semesters shall be 20, 20, 15 and 17 respectively. The total number of credits for the course shall be 72.

    4.2   Semesters I and II will consist of course work, Semesters III and IV shall   be devoted for Project Work.

    4.3   Semesters I and II will consist of 4 core courses, 2 electives, laboratory work and seminar.

5.   **Mode of Evaluation**

    5.1   A student would be considered to have progressed satisfactorily at the end of a semester if he/she has a maximum of 75% attendance and has secured a minimum of 50% sessional marks in each subject. Sessional marks will be awarded on the basis of class tests, assignments, viva-voce, practical assignments, term-paper, mini-project etc. A student who does not satisfy the above requirement will not be allowed to appear for the university examination in those subjects.

5.2   The Core courses and electives will be evaluated as follows:

50 marks for internal assessment.

50 marks for University examination

The evaluation of laboratory courses and seminar shall be based on internal assessment with weightage of 50 marks.

5.3   A candidate shall obtain minimum of 50% marks each in internal assessment and University examination separately or a pass in a subject. In the case of laboratory courses. For Seminar and project work, a minimum of 50% marks in internal assessment is required for a pass. A student shall complete his/her M. Tech programme within four years from the date of admission by acquiring the total credit requirements (72) as specified for the award of the degree.

5.4   The internal marks for project evaluation will be based on continuous evaluation. University examination will be conducted at the end of I and II semesters. At the end of III semester, students will have to submit a report based on his/her project work which will be presented before the examiners (internal and external examiners). At the end of IV semester the student has to submit the final project dissertation. He/she shall be assessed by a panel of examiners consisting of the project guide, an internal examiner and an external examiner.

6.   Grading and Classification

The following grading system is adopted for all the courses. The following grades will be awarded based on the overall performance in each subject.

Range of Marks	*Grades*	*Weightage*
90% and above	S-Outstanding	10
(80-89)	A- Excellent	9
(70-79)	B- Very Good	8
(60-69)	C- Good	7
(50-59)	D- Satisfactory	6
Below 50%	F- Failed	0

Decimal percentages shall be rounded to the next higher number if it is greater than or equal to 0.5.

Overall performance at the end of the semester will be indicated by Grade Point Average (GPA) calculated as follows:

$$GPA = G1C1 + G2C2 + G3C3 + \ldots\ldots\ldots Gn Cn C1 + C2 + C3 + \ldots\ldots\ldots .Cn$$

Where 'G' refers to the grade weightage and 'C' refers to the credit value of corresponding course undergone by the student.

At the end of the final semester, Cumulative Grade Point Average (CGPA) will be calculated based on the above formula. Classification for the Degree diploma will be as follows:

Classification	*CGPA*
First class with Distinction	8 and above
First class	7 and above
Second class	6 and above

7.   Revision of Regulations and Curriculum

The University may, from time to time, revise, amend or change the Regulations, Schemes of Examinations and Syllabus. In the case of students already undergoing the course, the change will take effect from the beginning of the following academic year after the changes are introduced.

Appendix —3

M. TECH (FULL TIME) DEGREE COURSE IN CIVIL ENGINEERING

(Specialization : Geotechnical Engineering)

Course Code	Name of the Subject	Hours per week	No. of Credits
(1)	(2)	(3)	(4)
	Semester—I		
CEG 3101	Applied Mathematics	4	4
CEG 3102	Advanced Soil Mechanics	4	4
CEG 3103	Soil Behaviour	4	4
CEG 3104	Soil Dynamics and Machine Foundations	4	4
CEG 3105	Elective—I	4	4
CEG 3106	Elective—II	4	4
CEG 3107	Geotechnical Engineering Laboratory—I	3	1
CEG 3108	Seminar—I	3	1
	Total	**30**	**26**

Elective—I

CEG 3105 A	Theoretical Soil Mechanics	
CEG 3105 B	Remote Sensing and GIS	
CEG 3105 C	Pavement Design and Evaluation	

Elective—II

CEG 3106 A	Finite Element Methods in Geomechanics	
CEG 3106 B	Ground Water Engineering	
CEG 3106 C	Land Slide Engineering	

Semester—II

Course Code	Name of the Subject	Hours per week	No. of Credits
CEG 3201	Subsurface investigation and Instrumentation	4	4
CEG 3202	Advanced Foundation Engineering	4	4
CEG 3203	Ground Improvement Techniques	4	4
CEG 3204	Earth Retaining Structures	4	4
CEG 3205	Elective—III	4	4
CEG 3206	Elective—IV	4	4

(1)	(2)	(3)	(4)
CEG 3207	Computer Applications Laboratory	3	1
CEG 3208	Seminar—II	3	1
	Total	**30**	**26**

Elective—III

CEG 3205 A	Earthquake Geotechnical Engineering	
CEG 3205 B	Geosynthetics in Geotechnical Engineering	
CEG 3205 C	Rock Mechanics	

Elective—IV

CEG 3206 A	Structural Design of Foundations	
CEG 3206 B	Geo-environmental Engineering	
CEG 3206 C	Soil Structure Interaction	

Course Code	*Name of the Subject*	*No. of Credits*
	Semester—III	
CEG 3301	Industrial / Field Training	2
CEG 3302	Project Progress Evaluation	8
	Total	**10**
	Semester—IV	
CEG 3401	Project Dissertation Evaluation & Viva Voce	14
	Total	**14**
	Grand Total	**76**

Appendix—4

M. TECH (FULL TIME) DEGREE COURSE IN INFORMATION TECHNOLOGY

(*Specialization : Software Design*)

Course Code	*Name of the Subject*	*Hours per week*	*No. of Credits*
(1)	(2)	(3)	(4)
	Semester—I		
MTSD 3101	Computational Methods in IT	4	4
MTSD 3102	Analysis of Algorithms	4	4
MTSD 3103	Object Oriented Modelling and Design	4	4
MTSD 3104	Software Engineering	4	4
MTSD 3105	Elective—I	4	4

(1)	(2)	(3)	(4)
MTSD 3106	Elective—II	4	4
MTSD 3107	Algorithm Design Lab	3	1
MTSD 3108	Seminar	3	1
	Total	**30**	**26**

Elective—I

MTSD 3105 A	Cloud Computing	
MTSD 3105 B	Android Programming	

Elective—II

MTSD 3106 A	Information Security and Cyber Laws	
MTSD 3106 B	Real Time Operating Systems	

Semester—II

MTSD 3201	Embedded Software Design	4	4
MTSD 3202	Software Test Design	4	4
MTSD 3203	Data and Computer Communication	4	4
MTSD 3204	Information Management	4	4
MTSD 3205	Elective—III	4	4
MTSD 3206	Elective—IV	4	4
MTSD 3207	Information System Design Lab	3	1
MTSD 3208	Seminar	3	1
	Total	**30**	**26**

Elective—III

MTSD 3205 A	Nano Informatics	
MTSD 3205 B	Advanced Computer Architectures	

Elective—IV   Artificial Intelligence and Soft Computing

MTSD 3206 A		
MTSD 3206 B	Adhoc Wireless Networks	

Course Code	*Name of the Subject*	*No. of Credits*
	Semester—III	
MTSD 3301	Project & Viva Voce	10
	Total	**10**

Semester—IV

MTSD 3401	Project & Viva Voce	14
	Total	**14**
	Grand Total	**76**

M. TECH DEGREE (FULL TIME) COURSE IN MECHANICAL ENGINEERING

(*Specialization : Thermal Engineering*)

No. of seats

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Eligibility Requirement for Admission

Candidates for admission to M.Tech Degree (FT) course in Mechanical Engineering (*Thermal Engineering*) shall be required to possess the following qualifications.

(a) Shall have passed B.Tech., B. E., B. Sc. Engineering degree examination in Mechanical branch with a minimum of 60% marks from any University in Kerala or an examination of any other University/Institution accepted by this University as equivalent thereto.

(b) Candidates who have passed sections A and B examinations conducted by the Institution of Engineers (India)– AMIE in Mechanical branch shall be eligible.

(c) A valid GATE score.

(d) In the absence of sufficient number of candidates with GATE score, candidates without GATE score shall also be considered subject to passing an Admission Test conducted by the University.

CREDIT PATTERN AS PER EXISTING REGULATIONS FOR FULL TIME M. TECH. COURSES

M. TECH DEGREE (FULL TIME) COURSE IN MECHANICAL ENGINEERING

(*Specialisation : Thermal Engineering*)

Offered at S O E

Course Code	Name of the Subject	Hours/Week	No. of Credits
(1)	(2)	(3)	(4)

Semester—I

MET 3101	Advanced Heat and Mass Transfer	4	4
MET 3102	Advanced Fluid Mechanics	4	4
MET 3103	Refrigeration and Air-conditioning	4	4
MET 3104	Incompressible and Compressible Flows	4	4
MET 3105	Elective—I	4	4
MET 3106	Elective—II	4	4
MET 3107	Thermal Engineering Laboratory—I	3	1
MET 3108	Seminar—I	3	1
	Total	**30**	**26**

Elective—I

(1)	(2)	(3)	(4)
MET 3105 A	Introduction to Turbulence		
MET 3105 B	IC Engine Combustion and Pollution		
MET 3105 C	Gas Turbines		
MET 3105 D	Diagnostic Methods in Combustion Systems		

Elective—II

MET 3106 A	Computational Methods in Engineering		
MET 3106 B	Combustion Technology		
MET 3106 C	Conduction and Radiation		
MET 3106 D	Principles of Turbo Machinery		

Semester—II

MET 3201	Advanced Thermodynamics	4	4
MET 3202	Heat Exchanger Design	4	4
MET 3203	Propulsion Engineering	4	4
MET 3204	Cryogenic Engineering	4	4
MET 3205	Elective—III	4	4
MET 3206	Elective—IV	4	4
MET 3207	Thermal Engineering Laboratory—II	3	1
MET 3208	Seminar—II	3	1
	Total	**30**	**26**

Elective—III

MET 3205 A	CFD and its Application		
MET 3205 B	Convection and Two Phase Flows		
MET 3205 C	Measurements in Thermal Engineering		
MET 3205 D	Flow and Thermal Instabilities		

Elective—IV

MET 3206 A	Numerical Methods in Thermal Engineering		
MET 3206 B	Finite Element Analysis		
MET 3206 C	Industrial Refrigeration Systems		
MET 3206 D	Jet Flow and Acoustics		

Course Code	*Name of the Subject*	*Number of Credits*
	Semester—III	
MET 3301	Project Progress Evaluation	10

	Total	10

Semester—IV

MET 3401	Project Dissertation Evaluation & Viva Voce	14
	Total	**14**
	Grand Total	**76**

NOTIFICATION

No. Conf. II/2941/02/2012(10).   *17th December 2013.*

Read:—Not. No. Conf. II/2941/02/2012/(10), dated 31-10-2012.

In exercise of the powers conferred by section 24(ii) read with section 42(1) of the CUSAT Act 1986, the Academic Council at its meeting held on 5-7-2012 approved the following:

1. Revised Schemes of Examinations for B.Tech courses under the Faculty of Engineering to be offered from the year 2012, as in Appendix—1.

2. To approve the regulation for B. Tech Engineering (with effect from 2012-2013 as in Appendix-2)

3. The Regulation and Scheme of Examination for the B. Tech (Part-Time) Programme for the I & II semesters with effect from the Acadamic year 2012-13 as in Appendix-3.

The Syndicate at its meeting held on 24-8-2013 vide Item No. 602.30 ratified the action taken by the Vice-Chancellor in having approved the above.

APPENDIX -1

B. TECH. DEGREE COURSE IN CIVIL ENGINEERING

Cochin University P. O.,   **B. Tech.-Scheme of Examinations (2012 Admissions)**   (Sd.)

Kochi-22.   *Prof. in-charge of Registrar.*

Semester I & II   (Common to all branches)

Code No.	Subject	Hrs./Week			C	Int.	Univ.	Total
		L	T	P				
1101	Engineering Mathematics—I	2	1		4	50	100	150
1102	Engineering Physics	3			4	50	100	150
1103	Engineering Chemistry	3			4	50	100	150
1104	Engineering Mechanics	3	1		5	50	100	150
1105	Engineering Graphics	1	.	3	5	50	100	150
1106	Basic Civil and Mechanical Engineering	2			4	50	100	150
1107	Basic Electrical and Electronics Engineering	2			4	50	100	150
1108	Computer Programming	1			4	50	100	150
1109	Environmental Studies and Technical Communication	2*			3	50	100	150
11 L1	Electrical and Mechanical Workshop	.	.	3	4	100	..	100
11 L2	Computer Programming Laboratory	.	.	2	2	100	..	100
11 L3	Language Laboratory	.	.	1	1	100	..	100
	Total	**19**	**2**	**9**	**44**			

* *1 hour/week each for Environmental Studies and Technical Communication.*

Code No.	Subject	Hrs./Week		C	Int.	Univ.	Total
		L	T/D/P				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Semester—III

CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE 1301	Engineering Mathematics—II	3	1	3	50	100	150
CE 1302 A/B	Surveying—I	3	1	3	50	100	150
CE 1303 A/B	Strength of Materials	3	1	3	50	100	150
CE 1304 A/B	Concrete Technology	3	1	3	50	100	150
CE 1305 A/B	Fluid Mechanics—I	3	1	3	50	100	150
CE 1306 A/B	Building Technology and Habitat Engineering	3	1	3	50	100	150
CE 13L1 A/B	Survey Practicals—I	..	3	2	100	..	100
CE 13L2 A/B	Strength of Materials Lab	..	3	2	100	..	100
	Total	**18**	**12**	**22**			

Semester—IV

CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE 1401	Engineering Mathematics—III	3	1	3	50	100	150
CE 1402 A/B	Surveying—II	3	1	3	50	100	150
CE 1403 A/B	Analysis of Structures—I	3	1	3	50	100	150
CE 1404 A/B	Engineering Geology & Seismology	4		3	50	100	150
CE 1405 A/B	Fluid Mechanics—II	3	1	3	50	100	150
CE 1406 A/B	Civil Engineering Drawing	1	3	3	50	100	150
CE 14L1 A/B	Survey Practicals—II and Survey Camp	..	3	2	100	..	100
CE 14L2 A/B	Fluid Mechanics Lab	..	3	2	100	..	100

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total	17	13	22			

STREAM A

<div align="center">Semester—V</div>

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE 1501	Engineering Mathematics—IV	3	1	3	50	100	150
CE 1502 A/B	Design of Structures—I	3	1	3	50	100	150
CE 1503 A/B	Analysis of Structures—II	3	1	3	50	100	150
CE 1504 A/B	Geotechnical Engineering—I	3	1	3	50	100	150
CE 1505 A/B	Transportation Engineering—I	4		3	50	100	150
CE 1506 A/B	Water Resources and Irrigation Engineering	4		3	50	100	150
CE 15L1 A/B	Geotechnical Engineering Lab	..	3	2	100	..	100
CE 15L2 A	Transportation Engineering Lab	..	3	2	100	..	100
	Total	**20**	**10**	**22**			

<div align="center">Semester—VI</div>

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CE 1601 A/B	Environmental Engineering—I	3	1	3	50	100	150
CE 1602 A/B	Design of Structures—II	3	1	3	50	100	150
CE 1603 A/B	Analysis of Structures—III	3	1	3	50	100	150
CE 1604 A/B	Geotechnical Engineering—II	3	1	3	50	100	150
CE 1605 A/B	Transportation Engineering—II	4	..	3	50	100	150
CE 1606 A	Elective—I	3	1	3	50	100	150
CE 16L1 A/B	Environmental Engineering Lab	..	3	2	100	..	100
CE 16L2 A	CAD in Civil Engineering	..	3	2	100	..	100

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total	**19**	**11**	**22**			

Semester—VII

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CE 1701 A/B	Environmental Engineering—II	3	1	3	50	100	150
CE 1702 A/B	Design of Structures—III	3	1	3	50	100	150
CE 1703 A/B	Construction Management	3	1	3	50	100	150
CE 1704 A/B	Quantity Surveying and Valuation	3	1	3	50	100	150
CE 1705 A	Elective—II	3	1	3	50	100	150
CE 17L1 A/B	Computer Application in Civil Engg.		3	2	100		100
CE 17L2 A/B	Building Technology and NDT Lab	..	3	2	100		100
CE 17L3 A/B	Seminar	..	2	1	50		50
CE 17L4 A	Industrial Training		6	1	50		50
CE 17L5 A/B	Project		2	1	50		50
	Total	**15**	**21**	**22**			

Semester—VIII

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CE 1801 A/B	Architecture & Town Planning	4		3	50	100	150
CE 1802 A/B	Earthquake Engineering	3	1	3	50	100	150
CE 1803 A/B	Construction Safety & Fire Engineering	4		3	50	100	150
CE 1804 A	Elective—III	4	1	3	50	100	150
CE 18L1 A/B	Construction and Structural Engg. Lab	..	3	2	100		100
CE 18L2 A/B	Project		10	6	200		200
CE 18L3 A/B	Viva Voce			2		100	100
	Total	**15**	**15**	**22**			

CE1606 A—Elective—I

E1 Cost Effective Building Techniques

E2 Environmental Geotechnics

E3 Traffic Engineering

E4 Air Pollution Control and Management

CE1705 A—Elective—II

E1 Design of Special Structures

E2 Ground Improvement Techniques

E3 Highway & Airfield Pavement Design

E4 Ground Water Engineering

CE1805 A—Elective—III

E1 Retrofitting and Rehabilitation of Structures

E2 Advanced Construction Techniques and Field Quality Control

E3 Industrial Waste Engineering & Management

E4 Remote Sensing & GIS

STREAM B

Hrs./Week

Code No.	Subject	L	T/D/P	C	Int.	Univ.	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

Semester—V

Code No.	Subject	L	T/D/P	C	Int.	Univ.	Total
CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE 1501	Engineering Mathematics—IV	3	1	3	50	100	150
CE 1502 A/B	Design of Structures—I	3	1	3	50	100	150
CE 1503 A/B	Analysis of Structures—II	3	1	3	50	100	150
CE 1504 A/B	Geotechnical Engineering—1	3	1	3	50	100	150
CE 1505 A/B	Transportation Engineering—I	4		3	50	100	150
CE 1506 A/B	Water Resources and Irrigation Engineering	4		3	50	100	150
CE 15LI A/B	Geotechnical Engineering Lab	..	3	2	100		100
CE 15L2 B	Transportation Engineering Lab	..	3	1	50		50
CE 15L3 B	Industrial/Field Training		6	1	50		
	Total	**20**	**16**	**22**			

Semester—VI

Code No.	Subject	L	T/D/P	C	Int.	Univ.	Total
CE 1601 A/B	Environmental Engineering—I	3	1	3	50	100	150
CE 1602 A/B	Design of Structures—II	3	1	3	50	100	150
CE 1603 A/B	Analysis of Structures—III	3	1	3	50	100	150
CE 1604 A/B	Geotechnical Engineering—II	3	1	3	50	100	150
CE 1605 A/B	Transportation Engineering—II	4		3	50	100	150
CE 1606 B	Elective—I	3	1	3	50	100	150
CE 16LI A/B	Environmental Engineering Lab	..	3	2	50		100
CE 16L2 B	CAD in Civil Engineering	..	3	1	100		100
CE 16L3 B	Industrial/Field Training		6	1	50		

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total	**19**	**17**	**22**			

Semester—VII

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CE 1701 A/B	Environmental Engineering—II	3	1	3	50	100	150
CE 1702 A/B	Design of Structures—III	3	1	3	50	100	150
CE 1703 A/B	Construction Management	3	1	3	50	100	150
CE 1704 A/B	Quantity Surveying and Valuation	3	1	3	50	100	150
CE 1705 B	Elective—II	3	1	3	50	100	150
CE 17L1 A/B	Computer Applications in Civil Engg.	..	3	2	100		100
CE 17L2 A/B	Building Technology and NDT Lab	..	3	2	100		100
CE 17L3 A/B	Seminar	..	2	1	50		50
CE 17L4 B	Industrial/Field Training		6	1	50		50
CE 17L5 A/B	Project		2	1	50		50
	Total	**15**	**21**	**22**			

Semester—VIII

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CE 1801 A/B	Architecture & Town Planning	4		3	50	100	150
CE 1802 A/B	Earthquake Engineering	3	1	3	50	100	150
CE 1803 A/B	Construction Safety & Fire Engineering	4		3	50	100	150
CE 1804 B	Elective—III	4	1	3	50	100	150
CE 18L1 A/B	Construction and Structural Engg. Lab	..	3	2	50		100
CE 18L2 A/B	Project		10	6	200		200
CE 18L3 A/B	Viva Voce			2		100	100
	Total	**15**	**15**	**22**			

CE1606 B—Elective—I

E1 Cost Effective Building Techniques

E2 Construction Engineering & Materials Management

E3 MIS and Finance Management

CE1705 B—Elective—II

E1 Contracts and Legal Aspects in Construction

E2 Ground Improvement Techniques

E3 Highway & Airfield Pavement Design

CE1805 B—Elective—III

El Retrofitting and Rehabilitation of Structures

E2 Advanced Construction Techniques and Field Quality Control

E3 Industrial Waste Engineering & Management

B. TECH DEGREE COURSE IN COMPUTER SCIENCE & ENGINEERING

(2012 Admissions)

Scheme of Examinations

Semester I & II   (Common to all branches)

Code No.	Subject	Hrs./Week			C	Int.	Unive	Total
		L	T	P				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1101	Engineering Mathematics—I	2	1		4	50	100	150
1102	Engineering Physics	3			4	50	100	150
1103	Engineering Chemistry	3			4	50	100	150
1104	Engineering Mechanics	3	1		5	50	100	150
1105	Engineering Graphics	1	.	3	5	50	100	150
1106	Basic Civil and Mechanical Engineering	2			4	50	100	150
1107	Basic Electrical and Electronics Engineering	2			4	50	100	150
1108	Computer Programming	1			4	50	100	150
1109	Environmental Studies and Technical Communication	2*			3	50	100	150
11 L1	Electrical and Mechanical Workshop	..	..	3	4	100	..	100
11 L2	Computer Programming Laboratory	..	..	2	2	100	..	100
11 L3	Language Laboratory	..	..	1	1	100	..	100
	Total	**19**	**2**	**9**	**44**			

* 1 hour/week each for Environmental Studies and Technical Communication.

Code No.	Subject	Hrs/Week				C	Int.	Unive.	Total
		L	T	P					
(1)	(2)	(3)	(4)	(5)	(6)	(7)		(8)	(9)
	Semester—III								
CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE 1301	Engineering Mathematics—II	3	1		0	3	50	100	150
CS 1302	Logic Design	3	1		0	3	50	100	150
CS/IT 1303	Discrete Computational Structures	3	1		0	3	50	100	150
CS/IT 1304	Object Oriented Programming	3	1		0	3	50	100	150
CS 1305	Principles of Programming Languages	3	1		0	3	50	100	150
CS/EB/EE/1306	Electronic Devices and Circuits	3	1		0	3	50	100	150
CS 13LI	Electronic Circuits Laboratory	0	0		3	2	100	..	100
CS/IT 13L2	Object Oriented Programming Laboratory	0	0		3	2	100	..	100
	Total	**18**	**6**		**6**	**22**			

Code No.	Subject	Hrs./Week			C	Int..	Univ.	Total
		L	T	P				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Semester—IV

Code No.	Subject	L	T	P	C	Int..	Univ.	Total
CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE 1401	Engineering Mathematics—III	3	1	0	3	50	100	150
CS/EB 1402	Microprocessors	3	1	0	3	50	100	150
CS 1403	Computer Architecture and Organization	3	1	0	3	50	100	150
CS 1404	Automata Languages and Computations	3	1	0	3	50	100	150
CS/IT 1405	Data Structures and Algorithms	3	1	0	3	50	100	150
CS 1406	Data Communications	3	1	0	3	50	100	150
CS/EB 14L1	Digital Electronics Laboratory	0	0	3	2	100	..	100
CS/IT 14L2	Data Structures Laboratory	0	0	3	2	100	..	100
	Total	**18**	**6**	**6**	**22**			

Semester—V

Code No.	Subject	L	T	P	C	Int..	Univ.	Total
CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE 1501	Engineering Mathematics—IV	3	1	0	3	50	100	150
CS 1502	System Programming	3	1	0	3	50	100	150
CS/IT 1503	Software Engineering	3	1	0	3	50	100	150
CS 1504	Computer Graphics	3	1	0	3	50	100	150
CS 1505	Database Management Systems	3	1	0	3	50	100	150
CS/EB 1506	Microprocessor Based System Design	3	1	0	3	50	100	150
CS 15L1	Microprocessor Laboratory	0	0	3	2	100	..	100
CS 15L2	Computer Graphics Laboratory	0	0	3	2	100	..	100
	Total	**18**	**6**	**6**	**22**			

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Semester—VI							
CS 1601	Digital Signal Processing	3	1	0	3	50	100	150
CS/IT 1602	Compiler Construction	3	1	0	3	50	100	150
CS 1603	Operating System	3	1	0	3	50	100	150
CS 1604	Computer Networks	3	1	0	3	50	100	150
CS/EB 1605	Modern Control Systems	3	1	0	3	50	100	150
CS 1606	Elective—I	3	1	0	3	50	100	150
CS 16L1	System Programming and Hardware Laboratory	0	0	3	2	100	..	100
CS 16L2	Mini Project	0	0	3	2	100	..	100
	Total	**18**	**6**	**6**	**22**			

Elective —I

CS 1606 E1 : Software Testing

CS 1606 E2 : System Modeling & Simulation

CS 1606 E3 : Security in Computing

CS/IT 1606 E4 : Embedded Systems

Semester—VII

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CS/EB/ EC/EE/EI/IT 1701	Industrial Organization and Management	3	1	0	3	50	100	150
CS 1702	Artificial Intelligence	3	1	0	3	50	100	150
CS 1703	Advanced Computer Networks	3	1	0	3	50	100	150
CS 1704	Analysis and Design of Algorithms	3	1	0	3	50	100	150
CS 1505	Elective—II	3	1	0	3	50	100	150
CS 17L1	Language Processors Laboratory	0	0	3	2	100	..	100
CS 17L2	Networks and Operating Systems Laboratory	0	0	3	2	100	..	100
CS 17L3	Project Design	0	0	2	1	50	..	50
CS 17L4	Seminar	0	0	2	2	50	..	50
	Total	**15**	**5**	**10**	**22**			

Elective—II

CS 1705 E1 : Software Project Management   CS 1705 E2 : Information Retrieval

CS 1705 E3: Grid Computing   CS/IT 1705 E4 : Neural Networks

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Semester—VIII							
CS 1801	Advanced Architecture and Parallel Processing	3	1	0	3	50	100	150
CS 1802	Object Oriented Modeling and Design	3	1	0	3	50	100	150
CS/IT 1803	Distributed Computing	3	1	0	3	50	100	150
CS 1804	Elective—III	3	1	0	3	50	100	150
CS 18L1	Project	0	0	14	8	300	..	300
CS 18L2	Viva-Voce	0	0	0	2	..	100	100
	Total	**12**	**4**	**14**	**22**			

Elective—III

CS 1804 E1 : Operations Research

CS 1804 E2 : Data Mining

CS 1804 E3 : Mobile Computing

CS 1804 E4 : Agent Based Intelligent Systems

B. TECH DEGREE COURSE IN ELECTRONICS & BIOMEDICAL ENGINEERING

Scheme of Examinations (2012 Admission onwards)

Semester I & II	(Common to all branches)	Hrs./Week						
		L	T	P				
Course Code.	Subject				Cred its	Inter nal	Unive rsity	Total
1101	Engineering Mathematics—I	2	1		4	50	100	150
1102	Engineering Physics	3			4	50	100	150
1103	Engineering Chemistry	3			4	50	100	150
1104	Engineering Mechanics	3	1		5	50	100	150
1105	Engineering Graphics	1	.	3	5	50	100	150
1106	Basic Civil and Mechanical Engineering	2			4	50	100	150
1107	Basic Electrical and Electronics Engineering	2			4	50	100	150
1108	Computer Programming	1			4	50	100	150
1109	Environmental Studies and Technical Communication	2*			3	50	100	150
11 L1	Electrical and Mechanical Workshop	.	.	3	4	100	..	100
11 L2	Computer Programming Laboratory	.	.	2	2	100	..	100
11 L3	Language Laboratory	.	.	1	1	100	..	100

Code No.	Subject	Hrs./Week			Credit	Inter-nal	Univer-sity	Total
		L	T	P				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Total	**19**	**2**		**9**	**44**			

* 1 hour/ week each for Environmental Studies and Technical Communication.

Semester—III

Code No.	Subject	L	T	P	Credit	Internal	University	Total
CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE/1301	Engineering Mathematics—II	3	1	0	3	50	100	150
EB 1302	Electrical Machines and Circuits	3	1	0	3	50	100	150
EB 1303	Principles of Anatomy and Physiology	3	1	0	3	50	100	150
EB/EC 1304	Digital Electronics	3	1	0	3	50	100	150
EB 1305	Medical Physics	3	1	0	3	50	100	150
CS/EB/EE 1306	Electronic Devices and Circuits	3	1	0	3	50	100	150
EB 13 L1	Analog Circuits Laboratory—I	0	0	3	2	100	-	100
EB 13 L2	Electrical Machines Laboratory	0	0	3	2	100	-	100
	Total	**18**	**6**	**6**	**22**			

Semester—IV

Code No.	Subject	L	T	P	Credit	Internal	University	Total
CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE 1401	Engineering Mathematics—III	3	1	0	3	50	100	150
CS/EB 1402	Microprocessors	3	1	0	3	50	100	150
EB 1403	Integrated Circuits and Systems	3	1	0	3	50	100	150
EB 1404	Bioelectric Phenomena	3	1	0	3	50	100	150
EB 1405	Communication Techniques	3	1	0	3	50	100	150
EB 1406	Power Electronics	3	1	0	3	50	100	150

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CS/EB 14 L1	Digital Electronics Laboratory	0	0	3	2	100	.	100
EB 14 L2	Analog Circuits Laboratory—II	0	0	3	2	100	.	100
	Total	**18**	**6**	**6**	**22**			

Semester—V

CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE 1501	Engineering Mathematics-IV	3	1	0	3	50	100	150
EB 1502	Biosensors and Transducers	3	1	0	3	50	100	150
EB 1503	Hospital Engineering	3	1	0	3	50	100	150
EB 1504	Biosignal Processing—I	3	1	0	3	50	100	150
EB 1505	Bioinstrumentation—I	3	1	0	3	50	100	150
CS/EB 1506	Microprocessor based System Design	3	1	0	3	50	100	150
EB 15 L1	Microprocessor Laboratory	0	0	3	2	100	.	100
EB 15 L2	Medical Electronics Laboratory—I	0	0	3	2	100	.	100
	Total	**18**	**6**	**6**	**22**			

Semester—VI

EB 1601	Medical Imaging Techniques	3	1	0	3	50	100	150
EB 1602	Biosignal Processing—II	3	1	0	3	50	100	150
EB 1603	Bioinstrumentation—II	3	1	0	3	50	100	150
EB 1604	Principles of Object Oriented Programming	3	1	0	3	50	100	150
CS/EB 1605	Modern Control Systems	3	1	0	3	50	100	150
EB 1606 E	Elective—I	3	1	0	3	50	100	150
EB 16 L1	Medical Electronics Laboratory—II	0	0	3	2	100	.	100
EB 16 L2	Mini Project	0	0	3	2	100	.	100
	Total	**18**	**6**	**6**	**22**			

EB 1606 E Elective—I

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
	EB 1606 E1	Artificial Neural Networks							
	EB 1606 E2	Computer Communications							
	EB 1606 E3	Digital System Design							
	EB 1606 E4	BioMEMS and Nanotechnology							

Semester—VII

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
CS/EB/ EC/EE/ EI/IT 1701	Industrial Organization and Management		3	1	0	3	50	100	150
EB 1702	Biomechanics		3	1	0	3	50	100	150
EB 1703	Medical Image Processing		3	1	0	3	50	100	150
EB 1704	Therapeutic Equipments		3	1	0	3	50	100	150
EB 1705 E	Elective—II		3	1	0	3	50	100	150
EB 17 L1	Biosignal Processing Laboratory		0	0	3	2	100		100
EB 17 L2	Bioengineering Laboratory		0	0	3	2	100	.	100
EB 17 L3	Project Design		0	0	2	1	50	..	50
EB 17 L4	Seminar		0	0	2	2	50	.	50
	Total		**15**	**5**	**10**	**22**			

EB 1705 E Elective—II

EB 1705 E1	Modeling of Physiological Systems
EB 1705 E2	Biostatistics and Design of Experiments
EB 1705 E3	Embedded Systems and Applications
EB/EC 1705 E4	Mechatronics

Semester—VIII

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
EB 1801	Principles of Radio diagnosis and Radiotherapy		3	1	0	3	50	100	150
EB 1802	Biomaterials		3	1	0	3	50	100	150
EB 1803	Biophotonics		3	1	0	3	50	100	150
EB 1804 E	Elective—III		3	1	0	3	50	100	150
EB 18 L1	Project		0	0	14	8	300	.	300
EB 18 L2	Viva Voce		..	..	..	2	.	100	100
	Total		**12**	**4**	**14**	**22**			

EB 1804 E Elective—III

EB 1804 E1	Telemedicine
EB 1804 E2	Bioinformatics
EB 1804 E3	Computer Graphics and Volume Visualization
EB 1804 E4	VLSI Design

B. TECH DEGREE COURSE IN ELECTRONICS & COMMUNICATION ENGINEERING

Scheme of Examinations (2012 Admission onwards)

Code No.	Subject	Hrs./Week			C	Inter.	Unive.	Total
		L	T	P				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Semester I & II   **(Common to all branches)**

Code No.	Subject	L	T	P	C	Inter.	Unive.	Total
1101	Engineering Mathematics—I	2	1		4	50	100	150
1102	Engineering Physics	3			4	50	100	150
1103	Engineering Chemistry	3			4	50	100	150
1104	Engineering Mechanics	3	1		5	50	100	150
1105	Engineering Graphics	1	.	3	5	50	100	150
1106	Basic Civil and Mechanical Engineering	2			4	50	100	150
1107	Basic Electrical Engineering and Electronics	2			4	50	100	150
1108	Computer Programming	1			4	50	100	150
1109	Environmental Studies and Technical Communication	2*			3	50	100	150
11 L1	Electrical and Mechanical Workshop	..	.	3	4	100	.	100
11 L2	Computer Programming Laboratory	..	.	2	2	100	.	100
11 L3	Language Laboratory	..	.	1	1	100	.	100
	Total	**19**	**2**	**9**	**44**			

1 hour/week each for Environmental Studies and Technical Communication.

Semester—III

Code No.	Subject	L	T	P	C	Inter.	Unive.	Total
CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE 1301	Engineering Mathematics—II	3	1	0	3	50	100	150
EC 1302	Probability and Random Process	3	1	0	3	50	100	150
EC/EI 1303	Network Theory	3	1	0	3	50	100	150
EB/EC1304	Digital Electronics	3	1	0	3	50	100	150
EC/EI 1305	Solid State Electronics	3	1	0	3	50	100	150

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EC/EI 1306	Electronic Circuits—I	3	1	0	3	50	100	150
EC/EI 13L1	Basic Electronics Laboratory	0	0	3	2	100	.	100
EC/EI 13L2	Digital Electronics Laboratory	0	0	3	2	100	.	100
	Total	**18**	**6**	**6**	**22**			

Semester—IV

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CE/CS/EB/ EC/EE/EI/FT/ IT/ME/SE 1401	Engineering Mathematics—III	3	1	0	3	50	100	150
EC 1402	Microprocessors : Architecture And Programming	3	1	0	3	50	100	150
EC/EI 1403	Electronic Circuits—II	3	1	0	3	50	100	150
EC/EI 1404	Signals and Systems	3	1	0	3	50	100	150
EC 1405	Communication Engineering—I	3	1	0	3	50	100	150
EC 1406	Digital System Design	3	1	0	3	50	100	150
EC 14 L1	Microprocessor Laboratory	0	0	3	2	100	.	100
EC 14 L2	Electronic Circuits Laboratory—I	0	0	3	2	100	.	100
	Total	**18**	**6**	**6**	**22**	**..**	**..**	**..**

Semester—V

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CE/CS/EB/EC/ EE/EI/FT/IT/ ME/SE 1501	Engineering Mathematics—IV	3	1	0	3	50	100	150
EC 1502	Electromagnetic Theory	3	1	0	3	50	100	150
EC 1503	Embedded Systems	3	1	0	3	50	100	150
EC 1504	Communication Engineering—II	3	1	0	3	50	100	150
EC/EI 1505	Analog & Integrated Circuits	3	1	0	3	50	100	150

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EC/EI 1506	Digital Signal Processing	3	1	0	3	50	100	150
EC 15 L1	Mini Project	0	0	3	2	100	-	100
EC 15 L2	Electronic Circuits Laboratory—II	0	0	3	2	100	-	100
	Total	**18**	**6**	**6**	**22**	**..**	**..**	**..**

Semester—VI

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EC1601	Electronic Measurements and Instrumentation	3	1	0	3	50	100	150
EC1602	Microwave Techniques and Devices	3	1	0	3	50	100	150
EC1603	VLSI Design	3	1	0	3	50	100	150
EC1604	Communication Engineering—III	3	1	0	3	50	100	150
EC1605	Control Systems Engineering	3	1	0	3	50	100	150
EC1606E	Elective—I	3	1	0	3	50	100	150
EC16L1	DSP Laboratory	0	0	3	2	100	.	100
EC16L2	Communication Laboratory—I	0	0	3	2	100	.	100
	Total	**18**	**6**	**6**	**22**	**..**	**..**	**..**

EC1606E—Elective I

EC1606 E1	Optical Fiber Communication
EC/EI 1606 E2	Digital Image Processing
EC1606 E3	Hardware Modelling
EC/EI 1606E4	Nano Electronics

Semester—VII

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CS/EB/EC/ EE/EI/IT 1701	Industrial Organisation and Management	3	1	0	3	50	100	150
EC1702	Antennas and Wave Propagation	3	1	0	3	50	100	150
EC1703	Electronic Product Design	3	1	0	3	50	100	150
EC1704	Power Electronics	3	1	0	3	50	100	150
EC1705E	Elective—II	3	1	0	3	50	100	150
EC17L1	Embedded Systems Laboratory	0	0	3	2	100	.	100
EC17L2	Communication Laboratory—II	0	0	3	2	100	.	100
EC17L3	Project Design	0	0	2	1	50	.	50
EC17L4	Seminar	0	0	2	2	50	.	50
	Total	**15**	**5**	**10**	**22**	**..**	**..**	**..**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

EC 1705E—Elective—II

	EC 1705 E1	EMI/EMC							
	EC 1705 E2	Adaptive Signal Processing							
	EC 1705 E3	Digital Integrated Circuit Design							
	EB/EC 1705 E4	Mechatronics							

Semester—VIII

EC1801	Multimedia Communication Systems	3	1	0	3	50	100	150
EC1802	Wireless Communication	3	1	0	3	50	100	150
EC1803	Computer Communication & Networking	3	1	0	3	50	100	150
EC1804E	Elective—III	3	1	0	3	50	100	150
EC18L1	Project	0	0	14	8	300	..	300
EC18L2	Viva Voce	..	..	..	2	..	100	100
	Total	**12**	**4**	**14**	**22**	**..**	**..**	**..**

EC 1804E—Elective—III

Code No.	Subject	Hrs./Week			C	Inter.	Unive.	Total
		L	T	P				
	EC 1804 E1	Computational Electromagnetics						
	EC/EI 1804 E2	Radar & Navigation						
(1)	(2) EC1804 E3	ASIC Design	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	EC/EI 1804 E4	Neuro-Fuzzy Systems							

B. TECH ELECTRICAL & ELECTRONICS ENGINEERING

(2012 Admission onwards)

Scheme of Examinations (2012 Admissions)

Semester I & II (Common to all branches)

1101	Engineering Mathematics—I	2	1		4	50	100	150
1102	Engineering Physics	3			4	50	100	150
1103	Engineering Chemistry	3			4	50	100	150
1104	Engineering Mechanics	3	1		5	50	100	150
1105	Engineering Graphics	1	..	3	5	50	100	150
1106	Basic Civil and Mechanical Engineering	2			4	50	100	150
1107	Basic Electrical and Electronics Engineering	2			4	50	100	150

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1108	Computer Programming	1			4	50	100	150
1109	Environmental Studies and Technical Communication	2*			3	50	100	150
11 L1	Electrical and Mechanical Workshop	.	..	3	4	100	..	100
11 L2	Computer Programming Laboratory	.	..	2	2	100	..	100
11 L3	Language Laboratory	.	..	1	1	100	..	100
	Total	**19**	**2**	**9**	**44**	**..**	**..**	**..**

* 1 hour/week each for Environmental Studies and Technical Communication.

Semester—III

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE 1301	Engineering Mathematics—II	3	1	0	3	50	100	150
EE 1302	Material Science	3	1	0	3	50	100	150
EE 1303	Fluid Mechanics & Heat Engines	3	1	0	3	50	100	150
EE 1304	Circuits, Signals & Systems—I	3	1	0	3	50	100	150
EE 1305	Electrical Measurements & Measuring Instruments	3	1	0	3	50	100	150
CS/EB/ EE 1306	Electronic Devices and Circuits	3	1	0	3	50	100	150
EE 13L1	Electronic Circuits Lab	0	0	3	2	100	.	100
EE 13L2	Basic Electrical Engineering Lab	0	0	3	2	100	.	100
	Total	**18**	**6**	**6**	**22**	**..**	**..**	**..**

Semester—IV

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE 1401	Engineering Mathematics III	3	1	0	3	50	100	150
EE 1402	Digital Electronics	3	1	0	3	50	100	150

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EE 1403	Electrical Machines—I	3	1	0	3	50	100	150
EE 1404	Circuits, Signals & Systems—II	3	1	0	3	50	100	150
EE 1405	Analog Communication	3	1	0	3	50	100	150
EE 1406	Industrial & Power Electronics	3	1	0	3	50	100	150
EE 14L1	Digital Electronics Lab	0	0	3	2	100	-	100
EE 14L2	Electrical Measurements Lab	0	0	3	2	100	-	100
	Total	**18**	**6**	**6**	**22**	**..**	**..**	**..**

Semester—V

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CE/CS/EB/ EC/EE/EI/FT/ IT/ME/ SE 1501	Engineering Mathematics—IV	3	1	0	3	50	100	150
EE 1502	Electrical Machines—II	3	1	0	3	50	100	150
EE 1503	Power Systems—I	3	1	0	3	50	100	150
EE 1504	Microprocessor Based Systems	3	1	0	3	50	100	150
EE 1505	Linear Integrated Circuits	3	1	0	3	50	100	150
EE 1506	Field Theory	3	1	0	3	50	100	150
EE 15L1	Electrical Machines Lab—I	0	0	3	2	100	.	100
EE 15L2	Microprocessor & Microcontroller Lab	0	0	3	2	100	.	100
	Total	**18**	**6**	**6**	**22**	**..**	**..**	**..**

Semester—VI

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EE 1601	Modern Communication Engineering	3	1	0	3	50	100	150
EE 1602	Electrical Drawing	3	1	0	3	50	100	150
EE 1603	Modern Digital Signal Processing	3	1	0	3	50	100	150
EE 1604	Electrical Machines—III	3	1	0	3	50	100	150
EE 1605	Control System—I	3	1	0	3	50	100	150

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
EE 1606	Elective—I	3	1	0	3	50	100	150
EE 16L1	Power Electronics Lab	0	0	3	2	100	-	100
EE 16L2	Mini Project	0	0	3	2	100	-	100
	Total	**18**	**6**	**6**	**22**	..	..	..

Electives

    1606 E1—Advanced Microprocessors

    1606 E2 —Optimization Techniques & Algorithm

    1606 E3—Image Processing

    1606 E4—Non Conventional & Renewable Energy Sources

Semester—VII

EE 1701	Industrial Organization and Management	3	1	0	3	50	100	150
EE 1702	Design Estimation & Costing	3	1	0	3	50	100	150
EE 1703	Power Systems—II	3	1	0	3	50	100	150
EE 1704	Control System—II	3	1	0	3	50	100	150
EE 1705	Elective—II	3	1	0	3	50	100	150
EE 17L1	Electrical Machines Lab—II	0	0	3	2	100	.	100\
EE 17L2	Advanced Electrical Engineering Lab	0	0	3	2	100	.	100
EE 17L3	Project Design	0	0	2	1	50	.	50
EE 17L4	Seminar	0	0	2	2	100	.	100
	Total	**15**	**5**	**10**	**22**	..	..	..

Elevtives

    EE 1705 E1—Wireless Communications

    EE 1705 E2—High Voltage DC & Extra High Voltage AC

    EE 1705 E3—Soft Computing

    EE 1705 E4—Energy Auditing & Analysis

Semester—VIII

EE 1801	Electronic Instrumentation	3	1	0	3	50	100	150
EE 1802	Electrical Machine Design	3	1	0	3	50	100	150
EE 1803	Power Systems—III	3	1	0	3	50	100	150

Code No.	Subject	L	T	P	C	Inter.	Unive.	Total
EE 1804	Elective—III	3	1	0	3	50	100	150
EE 18L1	Major Project	0	0	14	8	300	.	300
EE 18L2	Viva-voce	0	0	0	2	..	100	100
	Total	**12**	**4**	**14**	**22**	..	..	..

Code No. Electives	Subject	Hrs./Week			C	Inter.	Unive.	Total
		L	T	P				

EE 1804 E1—Mechatronics

EE 1804 E2—Biosensors and Transducers

EE 1804 E3—Flexible AC Transmission Systems

EE 1804 E4—Power Quality

B. TECH ELECTRONICS & INSTRUMENTATION ENGINEERING

(2012 Admission onwards)

Scheme of Examinations (2012 Admissions)

Semester I & II   (Common to all branches)

(1) Course Code	(2) Subject	(3) L	(4) T	(5) P	(6) C	(7) Inter.	(8) Unive.	(9) Total
1101	Engineering Mathematics—I	2	1		4	50	100	150
1102	Engineering Physics	3			4	50	100	150
1103	Engineering Chemistry	3			4	50	100	150
1104	Engineering Mechanics	3			5	50	100	150
1105	Engineering Graphics	1		3	5	50	100	150
1106	Basic Civil and Mechanical Engineering	2			4	50	100	150
1107	Basic Electrical and Electronics Engineering	2			4	50	100	150
1108	Computer Programming	1			4	50	100	150
1109	Environmental Studies and Technical Communication	2*			3	50	100	150
11 L1	Electrical and Mechanical Workshop	..	..	3	4	100	.	100
11 L2	Computer Programming Laboratory	..	..	2	2	100	.	100
11 L3	Language Laboratory	..	..	1	1	100	.	100
	Total	**19**	**2**	**9**	**44**			

* 1 hour/week each for Environmental Studies and Technical Communication.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Semester—III

EI 1301	Engineering Mathematics—II	3	1	0	3	50	100	150
EI 1302	Electrical Machines & Drives	3	1	0	3	50	100	150
EI 1303	Network Theory	3	1	0	3	50	100	150
EI 1304	Digital Systems	3	1	0	3	50	100	150
EI 1305	Solid State Electronics	3	1	0	3	50	100	150
EI 1306	Electronic Circuits—I	3	1	0	3	50	100	150
EI 13L1	Basic Electronics Laboratory	0	0	3	2	100	.	100
EI 13L2	Digital Electronics Laboratory	0	0	3	2	100	.	100
	Total	**18**	**6**	**6**	**22**			

Semester—IV

EI 1401	Engineering Mathematics—III	3	1	0	3	50	100	150
EI 1402	Computer Architecture and Microprocessors	3	1	0	3	50	100	150
EI 1403	Electronic Circuits—II	3	1	0	3	50	100	150
EI 1404	Signals and Systems	3	1	0	3	50	100	150
EI 1405	Electronic Instrumentation and Measurements	3	1	0	3	50	100	150
EI 1406	Power Electronic Systems	3	1	0	3	50	100	150
EI 14L1	Power Electronics and Measurements Laboratory	0	0	3	2	100	.	100
EI 14L2	Electronic Circuits Laboratory	0	0	3	2	100	.	100
	Total	**18**	**6**	**6**	**22**			

Semester—V

EI 1501	Engineering Mathematics—IV	3	1	0	3	50	100	150
EI 1502	Applied Electromagnetic Theory	3	1	0	3	50	100	150
EI 1503	Industrial Instrumentation—I	3	1	0	3	50	100	150
EI 1504	Microprocessors & Microcontrollers	3	1	0	3	50	100	150
EI 1505	Analog & Integrated Circuits	3	1	0	3	50	100	150
EI 1506	Digital Signal Processing	3	1	0	3	50	100	150
EI 15L1	Microprocessor Laboratory	0	0	3	2	100	.	100
EI 15L2	Linear Integrated Circuits Laboratory	0	0	3	2	100	-	100
	Total	**18**	**6**	**6**	**22**			

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Semester—VI							
EI 1601	Communication Engineering	3	1	0	3	50	100	150
EI 1602	Industrial Instrumentation—II	3	1	0	3	50	100	150
EI 1603	Process Instrumentation	3	1	0	3	50	100	150
EI 1604	Optoelectronic Devices and Communication	3	1	0	3	50	100	150
EI 1605	Control Systems	3	1	0	3	50	100	150
EI 1606	Elective—I	3	1	0	3	50	100	150
EI 16L1	Instrumentation Laboratory	0	0	3	2	100	.	100
EI 16L2	Mini Project	0	0	3	2	100	.	100
	Total	**18**	**6**	**6**	**22**			

Elective I-1606

EI 1606 E1	Analysis and Design of Instrumentation Systems
EI 1606 E2	Digital Image Processing
EI 1606 E3	Digital Design with VHDL
EI 1606 E4	Nano Electronics

Semester—VII

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CS/EB/EC/ EE/EI/IT 1701	IOM	3	1	0	3	50	100	150
EI 1702	Information Theory and Digital Communication	3	1	0	3	50	100	150
EI 1703	Automatic Process Control	3	1	0	3	50	100	150
EI 1704	Optical Instrumentation	3	1	0	3	50	100	150
EI 1705	Elective—II	3	1	0	3	50	100	150
EI 17L1	Signal Processing Laboratory	0	0	3	2	100	.	100
EI 17L2	Process Control Laboratory	0	0	3	2	100	.	100
EI 17L3	Project Design	0	0	2	1	50	.	50
EI 17L4	Seminar	0	0	2	2	50	.	50
	Total	**15**	**5**	**10**	**22**			

Elective II – 1705

EI 1705 E1	Embedded Systems
EI 1705 E2	Distributed Control Systems
EI 1705 E3	Nonlinear Control Systems
EI 1705 E4	VLSI Design

Semester—VIII

Code No.	Subject	L	T	P	C	Int.	Univ.	Total
		Hrs./Week						
EI 1801	Biomedical Instrumentation	3	1	0	3	50	100	150
EI 1802	Power Plant Instrumentation	3	1	0	3	50	100	150
EI 1803	Robotics & Industrial Automation	3	1	0	3	50	100	150
EI 1804	Elective—III	3	1	0	3	50	100	150
EI 18L1	Project	0	0	14	8	300	.	300
EI 18L2	Viva Voce	-	-	.	2	..	100	100
	Total	**12**	**4**	**14**	**22**			

Elective III—1804

EI 1804 E1	Virtual Instrumentation
EI 1804 E2	Radar & Navigation
EI 1804 E3	Remote Sensing and GIS
EI 1804 E4	Neuro-Fuzzy Systems

B. TECH DEGREE COURSE IN FOOD TECHNOLOGY

Scheme of Examinations (2012 Admissions)

Semester I & II (Common to all branches)

Course Code	Subject	L	T	P	C	Inter.	Univ.	Total
		Hrs./Week						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1101	Engineering Mathematics—I	2	1		4	50	100	150
1102	Engineering Physics	3			4	50	100	150
1103	Engineering Chemistry	3			4	50	100	150
1104	Engineering Mechanics	3	1		5	50	100	150
1105	Engineering Graphics	1	..	3	5	50	100	150
1106	Basic Civil and Mechanical Engineering	2			4	50	100	150
1107	Basic Electrical and Electronics Engineering	2			4	50	100	150
1108	Computer Programming	1			4	50	100	150
1109	Environmental Studies and Technical Communication	2*			3	50	100	150
11 L1	Electrical and Mechanical Workshop	..	..	3	4	100	.	100
11 L2	Computer Programming Laboratory	..	.	2	2	100	..	100
11 L3	Language Laboratory	..	..	1	1	100	.	100
	Total	**19**	**2**	**9**	**44**			

* 1 hour/week each for Environmental Studies and Technical Communication.

1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Semester—III

CE/CS/ EB/EC/EE/ EI/IT/ME/ SE/FT 1301	Engineering Mathematics—II	3	1	0	3	50	100	150
FT 1302	Physical Chemistry	4	0	0	3	50	100	150
FT 1303	Organic Chemistry	4	0	0	3	50	100	150
FT 1304	Microbiology	3	1	0	3	50	100	150
FT 1305	Biochemistry and Nutrition	3	1	0	3	50	100	150
FT 1306	Theory of Machines	3	1	0	3	50	100	150
FT 13L1	Microbiology Lab	0	0	3	2	100		100
FT 13L2	Physical and Organic Chemistry Lab	0	0	3	2	100		100
	Total	**20**	**4**	**6**	**22**	**500**	**600**	**1100**

Semester—IV

CE/CS/EB/ EC/EE/EI/ IT/ME/SE/ FT 1401	Engineering Mathematics—III	3	1	0	3	50	100	150
FT 1402	Principles of Chemical Engineering	3	1	0	3	50	100	150
FT 1403	Heat and Mass Transfer	3	1	0	3	50	100	150
FT 1404	Unit Operations in Food Processing	3	1	0	3	50	100	150
FT 1405	Refrigeration and Cold Chain	4	0	0	3	50	100	150
FT 1406	Food Microbiology	4	0	0	3	50	100	150
FT 14L1	Food Microbiology Lab	0	0	3	2	100		100
FT 14L2	Unit Operations Lab	0	0	3	2	100		100
	Total	**20**	**4**	**6**	**22**	**500**	**600**	**1100**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Semester—V							
CE/CS/EB/ EC/EE/EI/ IT/ME/SE/ FT 1501	Engineering Mathematics—IV	3	1	0	3	50	100	150
FT 1502	Food Chemistry and Additives	4	0	0	3	50	100	150
FT 1503	Food Process Engineering	3	1	0	3	50	100	150
FT 1504	Principles of Food Processing and Preservation	4	0	0	3	50	100	150
FT 1505	Food Process Equipment and Design	3	1	0	3	50	100	150
FT 1506	Food Analysis	3	1	0	3	50	100	150
FT 15L1	Food Analysis Lab	0	0	3	2	100		100
FT 15L2	Food Chemistry and Biochemistry Lab	0	0	3	2	100		100
	Total	**20**	**4**	**6**	**22**	**500**	**600**	**1100**
	Semester—VI							
FT 1601	Fruit and Vegetable Processing	3	1	0	3	50	100	150
FT 1602	Dairy Plant Engineering	3	1	0	3	50	100	150
FT 1603	Cereals, Pulses and Oilseeds Processing	4	0	0	3	50	100	150
FT 1604	Food Product Design and Development	3	1	0	3	50	100	150
FT 1605	Food Plant Layout and Design	3	1	0	3	50	100	150
FT 1606	Elective—I	4	0	0	3	50	100	150
FT 16L1	Food Processing Lab	0	0	3	2	100		100
FT 16L2	Mini Project	0	0	3	2	100		100
	Total	**20**	**4**	**6**	**22**	**500**	**600**	**1100**

FT1606 Elective—I

FT1606 E1   Fermentation and enzyme technology

FT1606 E2   Food flavourings

FT1606 E3   Food laws and regulations

FT1606 E4   Plant maintenance safety and hygiene

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Semester—VII

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FT 1701	Food Quality system and Management	3	1	0	3	50	100	150
FT 1702	Engineering Properties of Food	3	1	0	3	50	100	150
FT 1703	Food Packaging Technology	3	1	0	3	50	100	150
FT 1704	Instrumentation and Process Control	3	1	0	3	50	100	150
FT 1705	Elective—II	3	1	0	3	50	100	150
FT 17L1	Food Preservation Lab	0	0	3	2	100		100
FT 17L2	Engineering Properties Lab	0	0	3	2	100		100
FT 17L3	Project Design	0	0	2	1	50		50
FT 17L4	Seminar	0	0	2	2	50		50
	Total	**15**	**5**	**10**	**22**	**550**	**500**	**1050**

FT1705 Elective—II

FT 1705 EI—Beverage processing

FT1705 E2—Food process modelling

FT1705 E3—Technology of meat poultry and egg processing

FT1705 F4—Bakery and confectionary technology

Semester—VIII

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FT 1801	Management of Food Processing Industries	3	1	0	3	50	100	150
FT 1802	Entrepreneurship Development for Food Technology	4	0	0	3	50	100	150
FT 1803	Technology of Plantation Crops and Spices	3	1	0	3	50	100	150
FT 1804	Elective—III	4	0	0	3	50	100	150

Code No.	Subject		L	T	P	C	Inter.	Univ.	Total
FT 18L1	Project		0	0	14	8	300		300
FT 18L2	Viva Voce		0	0	0	2		100	100
		Total	14	2	14	20	500	500	1000

FT1804 Elective—III

FT 1804 E1 – Fish processing technology

FT 1804 E2 – Food biotechnology

FT 1804 E3 – Food industry waste management

FT 1804 E4 – Neutraceuticals and functional foods

B. TECH DEGREE COURSE IN INFORMATION TECHNOLOGY

Scheme of Examinations (2012 Admissions)

Semester I & II   **(Common to all branches)**

Code No.	Subject	L	T	P	C	Inter.	Univ.	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1101	Engineering Mathematics —I	2	1		4	50	100	150
1102	Engineering Physics	3			4	50	100	150
1103	Engineering Chemistry	3			4	50	100	150
1104	Engineering Mechanics	3	1		5	50	100	150
1105	Engineering Graphics	1		3	5	50	100	150
1106	Basic Civil and Mechanical Engineering	2			4	50	100	150
1107	Basic Electrical and Electronics Engineering	2			4	50	100	150
1108	Computer Programming	1			4	50	100	150
1109	Environmental Studies and Technical Communication	2*			3	50	100	150
11 L1	Electrical and Mechanical Workshop	..	..	3	4	100	.	100
11 L2	Computer Programming Laboratory	..	..	2	2	100	..	100
11 L3	Language Laboratory	..	..	1	1	100	.	100
	Total	19	2	9	44			

* 1 hour/week each for Environmental Studies and Technical Communication

Semester—III

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE/1301	Engineering Mathematics—II	3	1	0	3	50	100	150
IT/ME 1302	Electrical Technology	3	1	0	3	50	100	150
CS/IT 1303	Discrete Computational Structures	3	1	0	3	50	100	150
CS/IT 1304	Object Oriented Programming	3	1	0	3	50	100	150
IT 1305	Computer Organization	3	1	0	3	50	100	150
IT 1306	Logic Design and Electronic Circuits	3	1	0	3	50	100	150
IT 13 L1	Electronic Circuits Lab	0	0	3	2	100	.	100
CS/IT 13 L2	Object Oriented Programming Lab	0	0	3	2	100	.	100
	Total	**18**	**6**	**6**	**22**			

Semester—IV

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CE/CS/ EB/EC/EE/ EI/FT/IT/ ME/SE 1401	Engineering Mathematics—III	3	1	0	3	50	100	150
IT 1402	Microprocessor Architecture & System Design	3	1	0	3	50	100	150
IT 1403	System Programming	3	1	0	3	50	100	150
IT 1404	Database Management Systems	3	1	0	3	50	100	150
CS/IT 1405	Data Structures and Algorithms	3	1	0	3	50	100	150
IT 1406	Data & Computer Networking	3	1	0	3	50	100	150
IT 14 L1	PC Hardware and Microprocessor Lab	0	0	3	2	100	..	100
CS/IT 14 L2	Data Structures Lab	0	0	3	2	100	..	100
	Total	**18**	**6**	**6**	**22**			

Semester—V

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE 1501	Engineering Mathematics—IV	3	1	0	3	50	100	150
IT 1502	Operating Systems	3	1	0	3	50	100	150
CS/IT 1503	Software Engineering	3	1	0	3	50	100	150]
IT 1504	Design and Analysis of Algorithms	3	1	0	3	50	100	150
IT 1505	Object Oriented Modelling and Design	3	1	0	3	50	100	150
IT 1506	Internet Programming	3	1	0	3	50	100	150
IT 15 L1	Mini Project-RDBMS Based	0	0	3	2	100	.	100

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
IT 15 L2	Operating Systems Lab	0	0	3	2	100	.	100
	Total	**18**	**6**	**6**	**22**			

Semester—VI

IT 1601	Financial Management & E-Banking	3	1	0	3	50	100	150
CS/IT 1602	Compiler Construction	3	1	0	3	50	100	150
IT 1603	Knowledge Engineering	3	1	0	3	50	100	150
IT 1604	Formal Languages and Automata Theory	3	1	0	3	50	100	150
IT 1605	Computer Graphics and Animation	3	1	0	3	50	100	150
IT 1606	Elective—I	3	1	0	3	50	100	150
IT 16 L1	Computer Graphics Lab	0	0	3	2	100	.	100
IT 16 L2	Mini Project – Internet Based	0	0	3	2	100	.	100
	Total	**18**	**6**	**6**	**22**			

IT 1606 Elective—I

      E1 : Bioinformatics

      E2 : Parallel Computer Architecture & Programming

      E3 : Data Mining and Warehousing

      E4 : CS/IT 1606 D: Embedded Systems

Semester—VII

CS/EI/EB/EC/ EE/IT 1701	Industrial Organization & Management	3	1	0	3	50	100	150
IT 1702	Operations Research	3	1	0	3	50	100	150
IT 1703	Internetworking	3	1	0	3	50	100	150
IT 1704	Mobile Computing	3	1	0	3	50	100	150
IT 1705	Elective—II	3	1	0	3	50	100	150
IT 17 L1	Computer Network Lab	0	0	3	2	100	..	100
IT 17 L2	Mini project –Multimedia based	0	0	3	2	100	..	100
IT 17 L3	Project Design	0	0	2	1	50	..	50
IT 17 L4	Seminar	0	0	2	2	100	..	100
	Total	**15**	**5**	**10**	**22**			

IT 1705 Elective—II

      E1 : Digital Image Processing

      E2 : Cryptography and Data Security

      E3 : Human Computer Interaction

      E4 : Neural Networks

Semester—VIII

IT 1801	Electronic Business and Services	501	3	1	0	3	40	60	100
IT 1802	Real Time Systems		3	1	0	3	40	60	100

B. TECH DEGREE COURSE IN MECHANICAL ENGINEERING
Scheme of Examinations (2012 admissions)

Semester I & II (Common to all branches)

Code No.	Subject	L	T	P	C	Int.	Univ.	Total
1101	Engineering Mathematics –I	2	1		4	50	100	150
1102	Engineering Physics	3			4	50	100	150
1103	Engineering Chemistry	3			4	50	100	150
1104	Engineering Mechanics	3	1		5	50	100	150
1105	Engineering Graphics	1	..	3	5	50	100	150
1106	Basic Civil and Mechanical Engineering	2			4	50	100	150
1107	Basic Electrical and Electronics Engineering	2			4	50	100	150
1108	Computer Programming	1			4	50	100	150
1109	Environmental Studies and Technical Communication	2*			3	50	100	150
11 L1	Electrical and Mechanical Workshop	..	..	3	4	100	..	100
11 L2	Computer Programming Laboratory	..	..	2	2	100	..	100
11 L3	Language Laboratory	..	..	1	1	100	..	100
	Total	**19**	**2**	**9**	**44**			

* 1 hour/week each for Environmental Studies and Technical Communication.

Code No.	Subject	L	T	P	C	Int.	Univ.	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Semester—III

Code No.	Subject	L	T	P	C	Int.	Univ.	Total
CE/CS/EB/EC/EE/EI/FT/IT/ME/SE 1301	Engineering Mathematics II	3	1	0	3	50	100	150
ME 1302	Electrical Technology	3	1	0	3	50	100	150
ME 1303	Mechanics of Solids	3	1	0	3	50	100	150
ME 1304	Fluid Mechanics	3	1	0	3	50	100	150
ME 1305	Metallurgy & Materials Science	3	1	0	3	50	100	150
ME 1306	Machine Drawing	1	0	3	3	50	100	150
ME 13 L1	Strength of Materials Lab	0	0	3	2	100	..	100
ME 13 L2	Fluid Mechanics Lab	0	0	3	2	100	..	100
	Total	**16**	**5**	**9**	**22**			

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Semester IV

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CE/CS/EB/EC/ EE/EI/FT/ IT/ME/ SE 1401	Engineering Mathematics III	3	1	0	3	50	100	150
ME 1402	Metrology & Instrumentation	3	1	0	3	50	100	150
ME 1403	Mechatronics	3	1	0	3	50	100	150
ME 1404	Applied Thermodynamics	3	1	0	3	50	100	150
ME 1405	Hydraulic Machinery	3	1	0	3	50	100	150
ME 1406	Manufacturing Process	3	1	0	3	50	100	150
ME 14 L1	Electrical Machines Lab	0	0	3	2	100	..	100
ME 14 L2	Hydraulic Machinery Lab	0	0	3	2	100	..	100
	Total	**18**	**6**	**6**	**22**	**..**	**..**	**..**

Semester V

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CE/CS/EB/EC/ EE/EI/FT/ IT/ME/ SE 1501	Engineering Mathematics IV	3	1	0	3	50	100	150
ME 1502	Mechanics of Machinery	3	1	0	3	50	100	150
ME 1503	Machine Tools & Machining Science	3	1	0	3	50	100	150
ME 1504	Thermal Engineering	3	1	0	3	50	100	150
ME 1505	Industrial Management	3	1	0	3	50	100	150
ME 1506	Power Plant Engineering	3	1	0	3	50	100	150
ME 15 L1	Computational Methods Lab	0	0	3	2	100	..	100
ME 15 L2	Machine Shop	0	0	3	2	100	..	100
	Total	**18**	**6**	**6**	**22**	**..**	**..**	**..**

Semester VI

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ME 1601	Dynamics of Machinery	3	1	0	3	50	100	150
ME 1602	Machine Design – I	3	1	0	3	50	100	150
ME 1603	Operations Management	3	1	0	3	50	100	150
ME 1604	Heat & Mass transfer	3	1	0	3	50	100	150
ME 1605	CAD/CAM	3	1	0	3	50	100	150
ME 1606 E	Elective – I	3	1	0	3	50	100	150
ME 16 L1	CAD/CAM Lab	0	0	3	2	100	..	100
ME 16 L2	Thermal Engineering Lab	0	0	3	2	100	..	100
	Total	**18**	**6**	**6**	**22**	**..**	**..**	**..**

ME 1606 E Elective—1

    E1 Hydraulic and Pneumatic drives
    E2 Advanced Mechanics of Solids
    E3 Energy Conservation and Environment Protection
    E4 Advanced Engineering Materials

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Semester VII

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ME 1701	Refrigeration & Air-conditioning	3	1	0	3	50	100	150
ME 1702	Vibration & Noise Control	3	1	0	3	50	100	150
ME 1703	Machine Design – II	3	1	0	3	50	100	150
ME 1704	Automobile Engineering	3	1	0	3	50	100	150
ME 1705 E	Elective II	3	1	0	3	50	100	150
ME 17L1	Heat and Mass Transfer Lab	0	0	3	2	100	..	100
ME 17L2	Metrology & Measurements Lab	0	0	3	2	100	..	100
ME 17L3	Seminar	0	0	3	2	100	..	100
ME 17L4	Project Design	0	0	1	1	50	..	50
	Total	**15**	**5**	**10**	**22**	**..**	**..**	**..**

ME 1705 E Elective—II

E1 Aerospace Engineering

E2 Finite Element Method

E3 Quality Engineering

E4 Mechanical Behaviour of Materials

Semester VIII

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ME 1801	Compressible Fluid Flow	3	1	0	3	50	100	150
ME 1802	Production Technology	3	1	0	3	50	100	150
ME 1803	Operations Research	3	1	0	3	50	100	150
ME 1804 E	Elective III	3	1	0	3	50	100	150
ME 18L1	Project	0	0	14	8	300	..	300
ME 18L2	Viva voce	0	0	0	2	..	100	100
	Total	**12**	**4**	**14**	**22**	**..**	**..**	**..**

ME 1804 E Elective—III

E1 Propulsion Engineering

E2 Materials Management

E3 Computational Fluid Dynamics

E4 Cryogenic Engineering

B. TECH DEGREE COURSE IN SAFETY AND FIRE ENGINEERING

Scheme of Examinations (2012 Admissions)

Semester I & II (Common to all branches)

Code No.	Subject	L	T	P	C	Int.	Univ.	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1101	Engineering Mathematics –I	2	1	..	4	50	100	150
1102	Engineering Physics	3	..	..	4	50	100	150
1103	Engineering Chemistry	3	..	..	4	50	100	150
1104	Engineering Mechanics	3	1	..	5	50	100	150
1105	Engineering Graphics	1	..	3	5	50	100	150
1106	Basic Civil and Mechanical Engineering	2	..	..	4	50	100	150
1107	Basic Electrical and Electronics Engineering	2	..	..	4	50	100	150
1108	Computer Programming	1	..	..	3	50	100	`150
1109	Environmental Studies and Technical Communication	2*	..	..	3	50	100	150
11 L1	Electrical and Mechanical Workshop	..	..	3	4	100	..	100
11 L2	Computer Programming Laboratory	..	..	2	2	100	..	100
11 L3	Language Laboratory	..	..	1	1	100	..	100
	Total	**19**	**2**	**9**	**44**	**..**	**..**	**..**

Hrs./week spans columns L, T, P.

* 1 hour/week each for Environmental Studies and Technical Communication.

Semester III

Code No.	Subject	L	T	P	C	Int.	Univ.	Total
CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE 1301	Engineering Mathematics—II	3	1	0	3	50	100	150
SE 1302	Principles of Chemical Engineering	3	1	0	3	50	100	150
SE 1303	Engineering Fluid Mechanics and Machinery	3	1	0	3	50	100	150
SE 1304	Principles of Safety Management	3	1	0	3	50	100	150
SE 1305	Safety in Construction	3	1	0	3	50	100	150
SE 1306	Elements of Machine Drawing	3	1	0	3	50	100	150
SE 13 L1	Fluid Mechanics & Machinery Laboratory	0	0	3	2	100	..	100
SE 13 L2	Safety Engineering Laboratory	0	0	3	2	100	..	100
	Total	**18**	**6**	**6**	**22**	**..**	**..**	**..**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				Semester IV				
CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE 1401	Engineering Mathematics—III	3	1	0	3	50	100	150
SE 1402	Transfer Operations in Chemical Engineering	3	1	0	3	50	100	150
SE 1403	Strength of Materials	3	1	0	3	50	100	150
SE 1404	Fire Engineering Fundamentals	3	1	0	3	50	100	150
SE 1405	Electrical Technology and Safety	3	1	0	3	50	100	150
SE 1406	Occupational Health and First Aid	3	1	0	3	50	100	150
SE 14 L1	Strength of Materials Laboratory	0	0	3	2	100	..	100
SE 14 L2	Electrical Technology Laboratory	0	0	3	2	100	..	100
	Total	**18**	**6**	**6**	**22**	**..**	**..**	**..**
				Semester V				
CE/CS/EB/ EC/EE/EI/ FT/IT/ME/ SE 1501	Engineering Mathematics -IV	3	1	0	3	50	100	150
SE 1502	Reaction Engineering and Chemical Technology	3	1	0	3	50	100	150
SE 1503	Principles of Engineering Design	3	1	0	3	50	100	100
SE 1504	Planning and Design of Fire Protection Systems	3	1	0	3	50	100	100
SE 1505	Manufacturing Processes	3	1	0	3	50	100	100
SE 1506	Chemical Process Safety	3	1	0	3	50	100	100
SE 15 L1	Chemical Engineering Laboratory	0	0	3	2	100	..	100
SE 15 L2	Fire Safety Training	0	0	3	2	100	..	100
	Total	**18**	**6**	**6**	**22**	**..**	**..**	**..**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Semester VI							
SE 1601	Legal Aspects of HSE	3	1	0	3	50	100	150
SE 1602	Process Instrumentation and Control Engineering	3	1	0	3	50	100	150
SE 1603	Hazard Control in Manufacturing	3	1	0	3	50	100	150
SE 1604	Structural Fire Safety	3	1	0	3	50	100	150
SE 1605	Environmental Engineering and Management	3	1	0	3	50	100	150
SE 1606 E	Elective I	3	1	0	3	50	100	150
SE 16 L1	Machine Shop	0	0	3	2	100	..	100
SE 16 L2	Environmental Engineering & Management Laboratory	0	0	3	2	100	..	100
	Total	**18**	**6**	**6**	**22**	**..**	**..**	**..**

SE 1606 E Elective—I

E1 Power Plant Engineering
E2 Safety in Petroleum and Petrochemical Industries
E3 Food and Biosafety
E4 Fault Detection and Diagnosis

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Semester VII							
SE 1701	Hazard Identification and Risk Assessment	3	1	0	3	50	100	150
SE 1702	Transportation Systems and Safety	3	1	0	3	50	100	150
SE 1703	Principles of Industrial Management	3	1	0	3	50	100	150
SE 1704	Life Safety in Building Fire	3	1	0	3	50	100	150
SE 1705 E	Elective II	3	1	0	3	50	100	150
SE 17 L1	Fire Engineering Laboratory	0	0	3	2	100	..	100
SE 17 L2	Industrial Hygiene Laboratory	0	0	3	2	100	..	100
SE 17 L3	Computational Laboratory	0	0	2	1	50	..	50
SE 17 L4	Seminar	0	0	2	2	100	..	100
	Total	**15**	**5**	**10**	**22**	**..**	**..**	**..**

SE 1705 E *Elective—II*

E1 Fire Dynamics
E2 Reliability Engineering
E3 Automobile Engineering and Safety
E4 Industrial Ecology

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Semester VIII

SE 1801	Human Factors Engineering	3	1	0	3	50	100	150
SE 1802	Advanced Safety Engineering and Management	3	1	0	3	50	100	150
SE 1803	Disaster Management	3	1	0	3	50	100	150
SE 1804 E	Elective III	3	1	0	3	50	100	150
SE 18 L1	Project	0	0	14	8	300	..	300
SE 18 L2	Viva Voce	0	0	0	2	..	100	100
	Total	**12**	**4**	**14**	**22**	**..**	**..**	**..**

SE 1804 E Elective—III

E1 Fluid Power Systems
E2 Explosives Technology and Safety
E3 Total Quality Management
E4 Introductory Design of Structures

REGULATIONS FOR B. TECH. DEGREE COURSE UNDER FACULTY OF ENGINEERING

The following regulations are made applicable to all the B.Tech. programmes except Marine Engineering offered by Cochin University of Science and Technology under Faculty of Engineering with effect from the academic year 2012-2013.

1. B.Tech. Programme

The duration of the B.Tech. course in the University shall be eight semester spanning over four academic years. The Teaching Programme for each semester shall consist of 15 weeks.

1. 1. Branch

     a.   Civil Engineering

     b.   Computer Science and Engineering

     c.   Electronics and Biomedical Engineering

     d.   Electronics and Communication Engineering

     e.   Electrical and Electronics Engineering

     f.   Electronics and Instrumentation Engineering

     g.   Food Technology

     h.   Information Technology

     i.   Mechanical Engineering

     j.   Safety and Fire Engineering

1. 2. Structure of the B.Tech. Programme

1.2.1. The programme of instruction will consist of core courses and electives.

1.2.2. Every branch of the B.Tech. programme will have a curriculum and syllabi for the courses approved by the Academic Council.

1.2.3. The B.Tech. programmes shall follow the credit system.

1.2.4. The curriculum of any branch of the B.Tech Programme shall have a minimum total of 176 credits. In the case of lateral entry students this shall be 132.

1.2.5. A student shall complete the B.Tech. programme in a maximum period of 8 years from the date of admission. In the case of lateral entry students the maximum period shall be 6 years.

1.3. Mode of Evaluation

1.3.1. The performance of the students will be evaluated based on continuous assessment and University examination.

1.3.2. For theory courses, the continuous assessment and university examination will carry a maximum of 50 marks and 100 marks respectively. For practical courses, the continuous assessment and end semester examination will carry 50 percent weightage each.

1.3.3. In each theory course, the assessment pattern will be as follows:

Continuous assessment:

1. I Periodical Test   – Maximum marks   : 12.5

2. II Periodical Test   – Maximum marks   : 12.5

3. Assignments   – Maximum marks   : 15

4. Attendance   – Maximum marks   : 10

University Examination of 3 hours duration–Maximum marks : 100

1.3.4.   In each practical course, assessment pattern will be as follows:

1. Continuous assessment : 50 percent

2. End Semester examination : 50 percent

1.3.5. Normally both question paper setting and valuation of answer papers for all the periodical tests shall be carried out by the teacher who has handled the course. The question paper for the university examination for theory papers will be set by an external examiner. The controller of examinations will make necessary arrangements for setting the question papers and valuation of answer books for the university examination.

1.3.6. The continuous assessment in laboratory course will be based on supervision of the student's work, their performance in viva-voce examinations and the quality of their work. The end-semester examination for the laboratory courses shall be conducted internally by the respective department/division with atleast two faculty members as examiners. One of the examiners shall be an Associate Professor/Professor of the Department/Division.

1.3.7. In the case of project work, a committee consisting of the Project Co-ordinator (appointed by the Head of Department/Division), project guide and atleast one senior faculty member will carry out the assessment based on at least one interim review and a final review just before the submission of the project report.

1.3.8. The Viva-voce examination at the end of VIII Semester will be conducted by a panel of examiners consisting of the Head of the Department/Division or his/her nominee and one senior faculty of the Department/Division and an external expert.

1.3.9. A candidate shall be allowed to improve the continuous assessment marks in theory/laboratory courses subject to the following conditions:

During his/her regular course work of any semester, improvement of continuous assessment marks of any previous semesters will not be permitted.

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He/She shall repeat the theory/practical course only once and satisfy the minimum attendance requirement of 75 percent while repeating the course.

He/She shall not be allowed to repeat the course work of any semester if he/she has already secured a minimum of 60 percent marks for continuous assessment.

1.4. Pass requirements

1.4.1. A candidate has to obtain a minimum of 50 per cent marks for continuous assessment and university examination put together with a minimum of 45 per cent marks in the university semester examination for a pass in theory courses.

1.4.2. In the case of laboratory courses, the candidate shall obtain a minimum of 50 percent marks for continuous assessment and end semester examination put together with a minimum of 50 percent marks for end semester examination. Those who fail in the laboratory course shall appear in the end semester examination in the next available chance.

1.5. Promotion to Higher Semesters

1.5.1. The candidates shall be eligible for promotion from one semester to the next semester only if:

  (a) he/she has secured a minimum of 75% attendance, and has registered for the university examination.

  (b) his/her progress and conduct have been satisfactory.

Promotion from one semester to the next semester shall be subject to the condition that the candidate to be promoted to the nth semester should have earned a minimum of [(n-2) X 15] credits excluding the n-1)th semester. The norm is applicable only from fifth semester onwards. In the case of lateral entry students, this norm shall be applicable from the seventh semester only.

1.6. Attendance

1.6.1. The percentage of attendance of a candidate for a semester shall be indicated by a letter code as given below.

Attendance	Letter Code
90% and above	H
80% and above but less than 90%	N
Below 80%	L

(H-High, N-Normal, L- Low)

1.6.2. A student whose attendance is less than 75% for a semester is not eligible to appear for the University examination.

1.6.3. The Vice-Chancellor shall have the power to condone shortage of attendance up to 5 percent on medical grounds on the recommendations of the Principal/Head of Division/Department. However such condonation for shortage of attendance shall be given only twice during the entire course.

1.7. Grading

1.7.1. Grades shall be awarded to the students in each course-based on the total marks obtained in continuous assessment and the university examination. The grading pattern shall be as follows:

Marks obtained (Percentage)	Grade	Grade Points
90-100	S	10
80-89	A	9
70-79	B	8
60-69	C	7
50-59	D	6
<50	F	0

Decimal percentages shall be rounded to the next higher number if it is greater than or equal to 0.5.

1.7.2 A student is considered to have credited ac course or earned credits in respect of a course if he/she secures a grade other than F for that course.

1.7.3 Grade Point Average

The academic performance of a student in a semester is indicated by the Grade Point Average (GPA)

$$GPA = \frac{G1C1 + G2C2 + G3C3 + \ldots\ldots\ldots\ldots GnCn}{1 + C2 + C3 + \ldots\ldots\ldots\ldots\ldots Cn}$$

Where 'G' refers to the grade point and 'C' refers to the credits value of corresponding course undergone by the student.

CGPA for all the semesters of the B.Tech. programme shall be calculated as follows:

CGPA = ∑ (GPA for a semester × total No. of credits in the semester)

1.7.4   Grade Card

The Grade Card issued at the end of the semester to each student by the Controller of Examinations, will contain the following:

    (a)   The code, title, number of credits of each course registered in the semester,

    (b)   The letter grade obtained,

    (c)   The attendance code for the semester,

    (d)   The total number of credits earned by the student upto the end of that semester and

    (e)   GPA

    (f)   The month and year of passing each course and whether the candidate has improved his marks by reappearance.

A consolidated grade card will be issued on successful completion of the programme indicating the following:

    (a)   The GPAs obtained in each semester, the attendance code for the semester, and the month and year of successful completion of that semester.

    (b)   The CGPA obtained

1.7.5.   Classification

Classification based on CGPA is as follows:

    CGPA 8 and above: First Class with distinction

    CGPA 6.5 and above, but less than 8 : First Class

    CGPA 6 and above, but less than 6.5 : Second Class.

<div align="center">

B.TECH. (PART TIME) DEGREE (4 Year) COURSE

Rules and Regulations

</div>

   1.   Eligibility for Admission :

Candidates shall be Indian Nationals, either native of Kerala State or employed in Kerala State. Candidates shall possess the following qualifications:

A pass in the Diploma Examination in the respective disciplines in Engineering with a minimum of 50% aggregate marks.

Note:—**Eligible specialization in Diploma Examination:**

*For B.Tech. in Electrical & Electronics Engineering***:**—Instrument Technology/Electrical Engineering.

For B.Tech. in Electronics and Communication Engineering:—Electronics/Electronics & Communication Engineering/ Applied Electronics/Instrument Technology/ Electronics and Instrumentation/Biomedical Engineering/Medical Electronics/ Medical Instrumentation/ Electronics and Avionics/ Electronics Production Technology/Telecommunication Technology.

2. Experience:—The candidate shall have a minimum of two years full time work experience in a registered firm/ Company/Industry/Educational and/or Research Institute/ any Government Department/ Government, Autonomous Organizations in the relevant field in which admission is sought.

3. A letter shall be furnished by the employer stating that the candidate is being sponsored to seek admission to the respective course. The employer should also indicate that the candidate will not be withdrawn midway till the completion of the course.

4. *Reservation Policy:*—As per Government Rules. The seats unfilled in the reservation quota will be filled from the general merit.

5. *Selection Procedure:*—There will be an entrance test to select the candidates.

6. Selection of candidates will be made on the basis of the marks scored in diploma examination, entrance test and experience. 50% weightage will be given to the qualifying examination marks, 40 & weightage to entrance test and 10% to experience with 2% marks for each year of experience over the minimum required experience of 2 years.

- Course timing will be decided by the Principal/Head of the Institution offering the course so as to complete the total duration of the course within the prescribed time schedule.

- The subject of study shall be both theory & practical and will be in accordance with the scheme and syllabi prescribed by the University. There shall be University Examination at the end of every semester.

- The duration of the course is 8-semester extending over a period of 4 academic years.

SCHEME AND SYLLABUS

The same scheme and syllabus that is followed for the FT courses may be followed for the Part time courses also, except for the first year. The first year scheme is modified by removing Engineering Graphics and Electrical and Mechanical Workshop from the scheme for the full time courses. The modified scheme is attached below:

Scheme of Examinations (2012 Admissions)

Semester I & II (Common to all Branches)

Code No.	Subject	Hrs./week			C	Int.	Univ.	Total
		L	T	P				
1101	Engineering Mathematics-I	3	..	..	5	50	100	150
1102	Engineering Physics	3	..	..	5	50	100	150
1103	Engineering Chemistry	3	..	..	5	50	100	150
1104	Engineering Mechanics	3	1	..	6	50	100	150
1106	Basic Civil & Mechanical Engineering	2	..	..	5	50	100	150
1107	Basic Electrical Engineering and Electronics	2	..	..	5	50	100	150
1108	Computer Programming	1	..	..	4	50	100	150
1109	Environmental Studies and Technical Communication	2*	..	..	4	50	100	150
11L2	Computer Programming Laboratory	..	..	3	3	100	..	100
11L3	Language Laboratory	..	..	1	2	100	..	100
	Total	19	1	4	44	..	..	..

* 1 Hour/Week each for Environmental Studies and Technical Communication.

NOTIFICATION

No. Conf. II/2941/02/2012(11).   *17th December 2013.*

        Ref:—Not. No. Conf. II/2941/02/2012 (11) dated 31-10-2012.

        In exercise of the powers conferred by section 24 (ii) read with section 42(1) of the CUSAT Act 1986, the Academic Council at its meeting held on 5-7-2012, approved the revised Scheme of Exams for B.F.Sc. (Nautical Science) with effect from 2012 Admissions as in Appendix.

        The Syndicate at its meeting held on 24-8-2013 vide item No. 602.30 ratified the action taken by the Vice-Chancellor in having approved the above.

Cochin University P. O.,   (Sd.)
Kochi-682 022.   *Professor in-charge of Registrar.*

CENTRAL INSTITUTE OF FISHERIES NAUTICAL AND ENGINEERING TRAINING (CIFNET)

Bachelor of Fishery Science (Nautical Science)

Scheme of Examination

Course code	Paper	Core/ Elective	Credits	Internal	External
(1)	(2)	(3)	(4)	(5)	(6)
		Semester-I			
CIF 1101	Taxonomy of Finfish and Shell Fish	Core	4	50	50
CIF 1102	Fishing Gear Technology	Core	4	50	50
CIF 1103	Safety, Seamanship, Watch Keeping and Stability	Core	4	50	50
CIF 1104	Fish Biochemistry & Microbiology	Core	4	50	50
CIF 1105	Structural and Communicative English	Core	4	50	50
CIF 1106	General Mathematics	Core	4	50	50
CIF 1107	Taxonomy of Finfish and Shell Fish (Practical)	Core	4	100	0
CIF 1108	Swimming (Practical)	Core	2	100	0
CIF 1109	Library/Computer	NC	2 NC	0	0
				0	0
				500	300
	Total Marks				800
		Semester-II			
CIF 1201	Biology of Finfishes & Shell Fishes	Core	3	50	50
CIF 1202	Fishing Gear Materials & Accessories	Core	3	50	50
CIF 1203	Fisheries Statisitics	Core	4	50	50
CIF 1204	Principles of Marine Electronics	Core	3	50	50
CIF 1205	Marine Meteorology	Core	3	50	50
CIF 1206	Onboard Training- Nautical and Fishing (Practical)	Core	4	100	0
CIF 1207	Biology of Finfishes & Shell Fishes (Practical)	Core	4	100	0
CIF 1208	Fishing Gear Materials & Accessories (Practical)	Core	4	100	0
CIF 1209	Physical Education and First Aid Training	Core	2	100	0
CIF 1210	Library/Computer	NC	2 nc	0	0
				650	250
	Total Marks				900

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(1)	(2)	(3)	(4)	(5)	(6)

Semester-III

CIF 1301	Fish Population Dynamics	Core	4	50	50
CIF 1302	Inland Capture Fisheries	Core	4	50	50
CIF 1303	Chart Work and Passage Planning	Core	3	50	50
CIF 1304	Physical Oceanography	Core	3	50	50
CIF 1305	Marine Engineering	Core	4	50	50
CIF 1306	Fishing Craft Technology	Core	4	50	50
CIF 1307	Chart Work and Passage Planning (Practical)	Core	8	100	0
CIF 1308	Library/Computer/Onboard Training	NC	2 nc	0	0
				400	300
		Total Marks			700

Semester-IV

CIF 1401	Principles of Aquaculture	Core	4	50	50
CIF 1402	Fish Preservation Techniques	Core	4	50	50
CIF 1403	Practical Navigation	Core	5	50	50
CIF 1404	Refrigeration and Equipment Engineering	Core	5	50	50
CIF 1405	Marine Capture Fisheries	Core	4	50	50
CIF1406	Onboard Training - Nautical and Fishing (Practical)	Core	8	100	0
CIF 1407	Library/Computer/Onboard Training	NC	2 nc	0	0
				350	250
		Total Marks			600

Semester-V

CIF 1501	Seed Production and Hatchery Technology	Core	4	50	50
CIF 1502	Principles of Fishing Gear Design	Core	4	50	50
CIF 1503	Ship Construction, Hindship Problems and Cargo Works	Core	4	50	50
CIF 1504	Navigational Aids and Fish Finding Equipments	Core	4	50	50
CIF 1505	Naval Architecture	Core	4	50	50
CIF 1506	Commercial Fishing Methods	Core	3	50	50
CIF 1507	Seed Production and Hatchery Management (Practical)	Core	3	100	0
CIF 1508	Principles of Fishing Gear Design (Practical)	Core	4	100	0
CIF 1509	Library/Computer/Onboard Training	NC	2 nc	0	0
				500	300
		Total Marks			800

(1)	(2)	(3)	(4)	(5)	(6)

Semester VI

CIF 1601	Marine Ecology	Core	4	50	50
CIF 1602	Design of Commercial Fishing Gears	Core	3	50	50
CIF 1603	Fisheries Management	Core	4	50	50
CIF 1604	Seamanship and Navigation	Core	4	50	50
CIF 1605	Fisheries Extension	Core	3	50	50
CIF 1606	Onboard Training- Nautical and Fishing (Practical)	Core	8	100	0
CIF 1607	Design of Commercial Fishing Gears	Core	4	100	
CIF 1608	Library/Computer/Onboard Training	NC	2 NC	0	0
				450	250
			Total Marks		700

Semester-VII

CIF 1701	Coastal Aquaculture and Mariculture	Core	4	50	50
CIF 1702	Fleet Management and Harbour Engineering	Core	4	50	50
CIF 1703	Fisheries Economics	Core	4	50	50
CIF 1704	Coastal Zone Management and Marine Pollution (Elective)	Elective	4	50	50
CIF 1705	Aquaculture Engineering (Elective)	Elective	4	50	50
CIF 1706	Ship Operation Technology	Core	5	50	50
CIF 1707	Fish Products and By-products Technology	Core	5	50	50
CIF 1708	Fish Products and By-products Technology (Practical)	Core	4	100	0
CIF 1709	Library/Computer/Onboard Training	NC	2 NC	0	0
				450	350
			Total Marks		800

Semester-VIII

CIF 1801	Project Work- Field Visit/ Data Collection and Viva Voce	Core	30	200	0
				200	0
			Total Marks		200
			Grand Total		5,500

NOTIFICATION

No. Conf. II/2941/02/2012(12).   *17th   December 2013.*

  Read:—Not. No. Conf. II/2941/02/2012 (12) dated 31-10-2012.

In exercise of the powers conferred by section 24 (ii) read with section 42(1) of CUSAT Act 1986, the Academic Council at its meeting held on 5-7-2012, approved the Regulation and Scheme of Examination for M. F.Sc. (Sea Food Safety and Trade) offered at School of Industrial Fisheries with effect from 2012 admissions; as appended.

The Syndicate at its meeting held on 24-8-2013 vide item No. 602.30 ratified the action taken by the Vice-Chancellor in having approved the above.

Cochin University P. O.,   (Sd.)
Kochi-682 022.   *Professor in-charge of Registrar.*

School of Industrial Fisheries

Post Graduate degree Course leading to the degree of Master of Fisheries Science (M.F.Sc.) in "Seafood Safety and Trade" for which Assistance to School of Industrial Fisheries by UGC for 5 years approved as per UGC's letter No. F-14-29(A)/2012/(INNO-ASIST) dt.14-1-2012 under "Innovative Programme–Teaching & Research in Interdisciplinary and Emerging Areas".

Proposed rules & regulations submitted to the Board of Studies in Industrial Fisheries

 (1)   Name of the Programme

Master of Fisheries Science (M.F.sc.) in "Seafood Safety and Trade"

(2)   Duration of the course: Two years (4 Semesters)

(3)   Whether full time or part time : Full time

(4)   Academic year in which the course is proposed to be started : 2012-13

(5)   Total number of seats per batch : 20

(6)   Reservation policy: As per the norms of Cochin University of Science and Technology

 (7)   Eligibility Qualification:

Bachelor's Degree in Fisheries/Food Technology/Food Science/Food Microbiology/Biochemistry/Zoology with at least 55% marks in the optional subjects. Bachelor's Degree in Fisheries includes Industrial Fisheries/ Aqua-culture/Fishery Science/Industrial Fish and Fisheries/B.F.Sc. (Nautical Science) Bachelors Degree in Food Technology/Food Science includes B. Tech./B.E./B.Sc. in Food Science and Technology/Food Science and Management/Food Science/Food Technology/Food Processing Technology/Food Science and Quality Control

(8)   Admission Procedure : Through Entrance Test

(9)   Background,

Fisheries and aquaculture, directly or indirectly, play an essential role in the livelihoods of millions of people around the world. In the last three decades, employment in the primary fisheries and aquaculture sector has grown faster than the world's population and employment in traditional agriculture. An estimated 43.5 million people were directly engaged, part time or full time, in primary production of fish either in capture from the wild or in aquaculture, and a further 4 million people were engaged on an occasional basis (2.5 million of these in India).

Trade in fish and fishery products plays an important role in improving food security and contributes to fish products meeting nutritional needs. Fish and fishery products are highly traded with more than 37 percent (live weight equivalent) of total production entering international trade as various foods and feed products. 194 countries reported exports of fish and fishery products, today. World exports of fish and fishery products reached US $85.9 billion. It is expected to cross US $100 billion in 2012.

Food safety and health risk management should be considered as a core competence in the competitiveness of developing countries, especially in the context of trade in high-value food products. Effective capacities in SPS management are taking on increased importance among the wider set of competitiveness factors, such as stable macroeconomic conditions, suitable climatic conditions, effective logistics, and trade facilitation systems.

There is a huge loss in the supply chain in food industry including fish processing industry as reflected in the figure below. This is mainly due to improper handling, processing, transportation and quality assurance adopted in the seafood business. Trained man power in this sector would considerably able to reduce this loss.

Man power requirement at all levels in this sector is ever increasing and the supply from the higher learning institutions in the world is insufficient to meet the demand especially at the middle level management and top level management. India alone has 425 seafood plants exclusively producing their products for exports. In addition to this there are over thousands of traders involved in international trade of seafood. For developing this sector additional qualified manpower is a must especially when the country is entering into bilateral agreements for expanding trade with other countries. Presently there is a delay in clearing several imported fish items and other food items at the various ports due to lack of qualified manpower to inspect the products according to our import requirements and standards.

The School of Industrial Fisheries, established in 1976 with the prime objective of training students to meet the growing demand for qualified personnel in various facets of fisheries sector, has expertise in the various branches of the fisheries sciences such as aquaculture, fishery biology, capture fisheries, fishing technology, fish processing technology, fisheries economics and fisheries management. The mandate of the School is Manpower Development in applied fisheries, Pursuing Research and Development activities in contemporary and confronting issues on Fishery Sciences.

The school has involved in research and pioneering academic efforts in all emerging areas in fisheries. Food safety is emerging as the need of the hour world over. Food production systems and industries require specifically trained managerial personnel for enforcing stringent quality standards following guidelines offered by the buyer countries. At the same time, they must be well trained to handle difficult business situations and keep the trade front progressing. This is highly imperative for developing a new cadre of managerial technocrats in seafood industry with specializations in food safety and national and international trade. Against this background, the School of Industrial Fisheries proposes this new course on M.F.Sc. (SST).

Seafood Safety and Trade degree graduates can compete for entry-level positions in seafood production, sales, marketing, quality assurance, food safety/Total Quality Management institutions, finance and import/export. These areas, of course, will have an International Business focus and will include duties and responsibilities that expose the employee to pressing global issues. These graduates have the best chances of securing an upper-level management position with a multi-national corporation.

(10)   Objectives

To develop manpower specialized in managerial skills demanded by the trade and sea food safety.
To provide training in areas related to sea food business at par with world class institutions.

To extend state of art research opportunities in emerging vistas related to sea food trade, sea food quality assurance and international trade.

(11) Collaborating Institutions/Organisations

In addition to the Parent Department of Cochin University of Science & Technology National Institute of Fisheries Post Harvest Technology and Training (NIFPHTT) of Ministry of Agriculture, Cochin and Various Seafood Processing and Exporting Factories under the aegis of Seafood Exporters Association will collaborate with this programme especially in the Practical training and Project work of the students.

(12) Faculty Positions additionally required for the proposed course

 (These teaching posts may be instituted by the Academic Council as envisaged in Provision 24 (V) of the CUSAT Act 1986 and the qualifications may also be approved).

Faculty Position	Specialisation	Essential Qualifications	Desirable
Assistant Professor	International Marketing and Trade	Post graduate degree in Industrial Fisheries/MBA	Research experience in the relevant field/two years'
		Other conditions–as per existing UGC regulations	teaching experience
Assistant Professor	Quality Assurance and Food Safety	Post graduate degree in Industrial Fisheries/Food Safety/Food Microbiology.	Research experience in fish processing technology and food analysis/two years' teaching experience
		Other conditions–as per existing UGC regulations	

(13) Scheme of Examination

First Semester–Total Credits–21 (17 credit for core papers and 4 credit for elective papers)

Course Code	Name of paper	Credits- core/elective	Marks		
			Internal	External	Total
SIS 2101	Food Microbiology & Food Chemistry	4–Core	50	50	100
SIS 2102	Managerial Economics	3–Core	50	50	100
SIS 2103	Principles of Fisheries Business Management	3–Core	50	50	100
SIS 2104	Quantitative Techniques for Business Management	4–Elective	50	50	100
SIS 2105	Marketing Research for Seafood Business	3–Core	50	50	100
SIS 2106	Food Microbiology & Food Chemistry-Practical	2–Core	100	..	100
SIS 2107	Market Research –Data Analysis Using Statistical Software (SPSS)-Practical	1–Core	100	..	100
SIS 2108	Institutional/Industry/Field visit/ Case Studies/Seminar/Library	1–Core	100	..	100

Second Semester –Total Credit–26
(14 credit for core papers and 12 credit for electives)

Course Code	Name of paper	Credit-core/elective	Marks		
			Internal	External	Total
(1)	(2)	(3)	(4)	(5)	(6)
SIS 2201	Seafood Processing Technology	4–Core	50	50	100
SIS 2202	Environmental and Natural Resource Economics	4–Core	50	50	100
SIS 2203	Supply Chain Management and International Logistics for Fish and Fishery Products Trade	4–Core	50	50	100

(1)	(2)	(3)	(4)	(5)	(6)
SIS 2204	Aquaculture Systems and Practices	4–Elective	50	50	100
SIS 2205	International Trade and Development 3 (Elective)	4–Elective	50	50	100
SIS 2206	Seafood Processing Technology – Practical	2–Core	100	..	100
SIS 2207	Aquaculture Systems and Practices-Practical	1–Elective	100	..	100
SIS 2208	Institutional/ Industry/ Field visit/ Case Studies/Seminar Fisheries Economics	3–Elective	100	..	100

Third Semester–Total Credit—18 (10 credits for core papers and 8 credits for electives)

Course Code	Name of paper	Credit- core/elective	Marks		
			Internal	External	Total
SIS 2301	Sustainable Aquaculture System for Safer Food Products	3–Core	50	50	100
SIS 2302	Value Added Products Technology	3–Elective	50	50	100
SIS 2303	International Business Environment and Finance Management	3–Elective	50	50	100
SIS 2304	Food Safety for Trade	3–Core	50	50	100
SIS 2305	International Marketing and Export Procedures	3–Core	50	50	100
SIS 2306	Value Added Products Technology-Practical	1–Elective	100	..	100
SIS 2307	Food Safety For Trade	1–Core	100	..	100
SIS 2308	Institutional/ Industry/ Field Visit/ Case Studies/Seminar Fisheries Economics	1–Elective	100	..	100

Fourth Semester–Total Credit—18 core

Course Code	Name of paper	Credit- core/elective	Marks		
			Internal	External	Total
SIS 2401 (Stream I)	Seafood Safety (Thesis course work)	4-Core	50	50	100
SIS 2402 (Stream II)	Seafood Trade and Management (Thesis course work)	4-Core	50	50	100
SIS 2403	Thesis Seminars	1Credit-Core	100	..	100
SIS 2404	Research and Thesis work	10 Credit-Core	100	..	100
SIS 2405	Thesis evaluation and Viva-voce	1Credit-Core	200	..	200
SIS 2406	Course Viva-voce	2Credit-Core	100	..	100

Credit for Core Courses-17+14+10+18 = 59, Credit for Electives-4+12+8=24

In addition to the above Core and Electives the students are free to take any electives offered in the various departments of the University

No. Conf.II/2941/02/2012(13). *17th December 2013.*

Read:—U.O. No. Conf.II/Faculty/1/2012 dated 26-4-2012.

The Faculty of Engineering at its meeting held on 16-3-2012 recommended to approve the following amendment made to the eligibility conditions for B.Tech Lateral Entry Students for getting First Class.

"Candidates whose results of any semesters are published on or after 1-11-2008 and who have secured not less than 60% of the grand total of marks including Internal marks for all the 6 semesters (3rd to 8th semesters) shall be declared to have passed the B.Tech Degree Examinations in First Class, provided the candidates have completed the course within a period of seven (7) Academic Years from the year of admission".

The action taken by the Vice-Chancellor in approving the above, was ratified by the Academic Council at its meeting held on 5-7-2012 and Syndicate at its meeting held on 24-8-2013 (item No. 602.30).

Cochin University P. O.,   (Sd.)
Kochi-22.   *Professor in-charge of Registrar.*

NOTIFICATION

No. Conf.II/2941/02/2012(14). *17th December 2013.*

Read:—U.O. No. Conf.II/Faculty/9/2011 dated 12-4-2012.

In exercise of the powers conferred by Section 24(ii) read with section 42(1) of the CUSAT Act 1986, the Academic Council at its meeting held on 5-7-2012 considered and ratified the action taken by the Vice-Chancellor in having approved the recommendation of the Faculty of Medical Science and Technology and Board of Studies in Medical Science and Technology and Nursing made at the combined meeting held on 27-10-2011 approving the following :

(1)   The revised curriculum books of 2006-2012, 2007-2013 & 2008-2014 (M.B.B.S. Academic Calendars by the Directorate of Medical Education, Kerala).

(2)   The Syllabus for 2nd, 3rd and 4th year of B.Sc. Nursing (2011-2012).

(3)   Modification in Clause 11 of the Regulation for B.Sc. Nursing as following:—

"No candidate shall be admitted to subsequent higher examinations unless he/she has passed previous Examination. The candidate shall be allowed to continue the programme upto Fourth year but he/she shall be allowed to appear for the Final year examination only after passing I, II and III year examinations".

(4)   In the Scheme of Examination for B.Sc. Nursing, the duration of University Examination shall be 3 hours for each theory paper.

(5)   Number of Additional chances for appearance in Examination for B.Sc. Nursing:— "A candidate shall have one regular and 4 additional chances for appearing each subject".

(6)   The model question papers for III and IV year B.Sc. Nursing Examinations, approved with modifications.

(7)   A completion certificate be given regarding CRRI Programme of M.B.B.S. students, provided the college gives a positive certificate.

The Syndicate at its meeting held on 24-8-2013 considered and ratified the above action taken by the Vice-Chancellor (vide 602.31).

Cochin University P. O.,   (Sd.)
Kochi-22.   *Professor in-charge of Registrar.*

No. Conf.II/2941/02/2012(15).   *17th December 2013.*

Read:—1. Conf. II/Faculty/2/2011 dated 9-2-2012 and 14-6-2012.

   2. Conf. II/2941/2/2012 (3) dated 31-10-2012.

The Academic Council at its meeting held on 5-7-2012 considered and approved the action taken by the Vice-Chancellor in having approved the recommendations of Faculty of Technology made at its meeting held on 23rd September, 2011 as given below:

1. Requirement for a pass in M.Tech Electronics Examinations conducted in Recognized Institutions under CUSAT and approved the additional requirement as given below.

   "A student shall, be considered passed in a subject if he/she scores 50% (External University Examination + Sessional put together), subject to a minimum of 50% for External University Examination" with effect from 2012 admission onwards.

2. Approved the syllabus for the new course in M.Tech Wireless Technology, proposed by Toc H Institute of Technology (as in Appendix I) with recommendation to change the nomenclature of the course as M.Tech (electronics) with specialization in wireless Technology with effect from 2011 admissions onwards.

3. Modified the eligibility criteria for M.Tech in Electronics with specialization in signal processing as follows, with effect from 2012 admission onwards—

   "Bachelors Degree in Electronics and Communication Engineering, Electronics and Instrumentation Engineering, Electronics and Biomedical Engineering, Electrical and Electronics Engineering, Applied Electronics and Instrumentation Engineering, Electronics Engineering, Computer Science and Engineering and Information Technology and M.Sc. (Electronics)".

4. Modified the eligibility criteria for M.Tech in Electronics with specialization in Opto Electronics and Communication Systems as following, with effect from 2012 admission onwards —

   "Bachelors Degree in Electronics and Communication Engineering, Electronics and Instrumentation Engineering, Electronics and Biomedical Engineering, Electrical and Electronics Engineering, Applied Electronics and Instrumentation Engineering and Electronics Engineering and M.Sc. Electronics, M.Sc. (Photonics)".

5. Approved the revised course structure and syllabi of M.Tech Electronics with specialization in VLSI and Embedded System conducted by Model Engineering College, Thrikkakara as in Appendix 2; with effect from 2012 admission onwards.

6. Renamed the 2 common papers of M.Tech Electronics with specialization in VLSI and Embedded Systems and DSP as follows; with effect from 2012 admission onwards.

   (i)   ELV 3101 Advanced Digital System Design as ELV 3101/SP 102 Advanced Digital System Design.

   (ii) SP 102 Advanced Digital System Design as ELV 3101/SP 102.

7. Approved the Regulation, Scheme of Examinations and Syllabi and grading system for the courses offered by following 2 Naval Schools under Southern Naval Command.

   1. M.Sc. Electronics and Telecommunication conducted by INS Valsura.

   2. M.Sc. Telecommunication for Regular and Lateral Entry conducted by the Signal School.

The Syndicate at its meeting held on 24-8-2013 approved and ratified the above action taken by the Vice-Chancellor (vide item No. 602.31).

Cochin University P. O.,   (Sd.)
Kochi-22.   *Professor in-charge of Registrar.*

Course Structure M.Tech (Electronics) with Specialization in Wireless Technology

Course Code	Name of Course	Internal Marks	Ext. Marks	Total Marks	C/E	Credits
First Semester						
CWT3101	Probability and Stochastic Processes	50	50	100	C	3
CWT3102	Wireless Communications	50	50	100	C	3
CWT3103	Antenna Systems	50	50	100	C	3
CWT3104	Digital Communication	50	50	100	E	3
CWT3105	Network routing algorithms	50	50	100	E	3
CWT3106	Optical and wire line Technology	50	50	100	E	3
CWT3107	MEMS	50	50	100	E	3
CWT3108L	Communication Simulation Lab	100	0	100	C	1
CWT3109L	Communication Lab with core course	100	0	100	E	1
CWT3110L	Embedded Lab	100	0	100	E	1
Second Semester						
CWT3201	Cellular Mobile Communication	50	50	100	C	3
CWT3202	Electromagnetic Interference/ Electromagnetic compatibility in System	50	50	100	C	3
CWT3203	Ad Hoc & Sensor Networks	50	50	100	C	3
CWT3204	Smart Antennas	50	50	100	E	3
CWT3205	Global Positioning Systems	50	50	100	E	3
CWT3206	Image and Video Processing	50	50	100	E	3
CWT3207	Broadband Wireless Technologies	50	50	100	E	3
CWT3208	Seminar	100	0	100	C	1
CWT3209L	Mobile Communication Lab	100	0	100	E	1
CWT3210L	Wireless and Ad Hoc Network Lab	100	0	100	E	1
Third Semester						
CWT3301	Project evaluation & Viva voce	100	200	300	C	18
Fourth Semester						
CWT3401	Project evaluation & Viva voce	100	200	300	C	18

M.Tech Electronics with Specialization in VLSI and Embedded System w.e.f . 2012 Admission onwards

Course code	Name of course	C/E	Credits	Internal marks	External marks	Total
		Semester I				
ELV3101	Advanced Digital System Design	C	3	50	50	100
ELV3102	VLSI Technology & Design	C	3	50	50	100
ELV3103	Designing with Microcontrollers	C	3	50	50	100
ELV3104	VLSI Design Automation	E	3	50	50	100
ELV3105	Embedded and Real Time Systems	E	3	50	50	100
ELV3106	System on chip design	E	3	50	50	100
ELV3107	Computer Communication Networks	E	3	50	50	100
ELV3108	Reconfigurable Computing Lab	C	1	100		100
ELV3109	RTOS Lab	C	1	100		100
		Semester II				
ELV3201	Analog Integrated Circuit Design	C	3	50	50	100
ELV3202	Advanced DSP Concepts and Architectures	C	3	50	50	100
ELV3203	Embedded System Design	C	3	50	50	100
ELV3204	Low power Digital design	E	3	50	50	100
ELV3205	High Speed Digital Design	E	3	50	50	100
ELV3206	CPLD & FPGA Architecture & Applications	E	3	50	50	100
ELV3207	Embedded Linux Systems	E	3	50	50	100
ELV3208	Physical Design Lab	C	1	100		100
ELV3209	Advanced Microcontroller Lab	C	1	100		100
ELV3210	Seminar	C	1	50		50

Course code	Name of course	Hours/week L/T P/S	Credits	Internal marks	External marks	Total
		Semester III				
ELV 3301	Project Progress Evaluation	30	18	100	200	300
		Semester IV				
ELV340 1	Project Dissertation Evaluation	30	18	100	200	300

No. Conf. II/2941/2/2012.   *19th October 2013.*

Read:—Notification No. Conf. II/2941/1/2011 dated 4-8-2011.

The Academic Council at its meeting held on 5-7-2012 considering the proposal for amending the present Ph.D. Regulations (2010), for accommodating the provision of awarding Ph.D. Degree from both the Universities of Kent and CUSAT, resolved to effect modifications in the Ph.D. Regulation 2010 by including a Clause 23(a) **Sandwich Programme.**

The Syndicate at its meeting held on 24-8-2013 vide item No. 602.16 considered along with the recommendation of the Standing Committee of the Syndicate on Academic Matters (regarding UKIERI), amendment of the Ph.D. Regulation, 2010 to accommodate provision of awarding Ph.D. Degree from both the Universities of Kent and CUSAT.

The Syndicate resolved to approve the modified amendment to the Clause (23) of the Ph.D. Regulations 2010 as:

"In the case of students working in International Collaborative Programmes on the basis of Memorandum of Understanding between CUSAT and a foreign University, approved by the syndicate, the awarding of the Ph.D. can be governed by the terms of reference stipulated for the same in the MoU".

The Vice Chancellor approved the above amendment made by the Syndicate subject to the ratification by the Academic Council.

The Notification read above stands modified to this extent.

Cochin University P. O.,   Dr. A. RAMACHANDRAN,
Kochi-22.   *Registrar.*

No. Conf. II/2941/2/2012(16).   *20th January 2014.*

Read:—Notification No. Conf. II/2941/2/2012 dated 16-7-2013.

In exercise of the powers conferred by 24(ii) read with Section 42(1) of the CUSAT Act 1986, the Academic Council at its meeting held on 5-7-2012 approved the Schemes of Exams of the following M.Tech. Courses offered in various Recognized Institutions of the University; effective from 5-7-2012 (the date of meeting of Academic Council).

1. M.Tech in Civil Engineering (Specialization : Construction Engineering and Management)

2. M.Tech in Electrical and Electronics Engineering (Specialization : Power Electronics)

3. M.Tech in Mechanical Engineering (Specialization: Energy- Management)

The Syndicate at its meeting held on 24-8-2013 vide item No. 602.30 ratified the action taken by the Vice-Chancellor in having approved the above.

Cochin University P. O.,   (Sd.)
Kochi-22.   *Professor in-charge of Registrar.*

M. TECH IN CIVIL ENGINEERING

(Specialisation: Construction Engineering and Management)

Sl. No.	Course Code	Subject	L	T	P	Credits
(1)	(2)	(3)	(4)	(5)	(6)	(7)
		Semester 1				
1	MCE 101	Applied Mathematics	3	1	-	3
2	MCE 102	Construction Engineering	3	1	-	3
3	MCE 103	Foundation Engineering	3	1	-	3
4	MCE 104	Earthquake resistant design of structures	3	1	-	3
5	MCE E105*	Elective I	4	-	-	3
6	MCE E106*	Elective II	4	-	-	3
7	MCE 107	Seminar	1	-	-	1
8	MCE 108	Computer Programming Lab (C++ & Matlab, CAD and scheduling softwares)		-	3	1
		Total	**21**	**4**	**3**	**20**

(1)	(2)	(3)	(4)	(5)	(6)	(7)

Elective I

    MCE E105A Construction Management
    MCE E105B Construction Equipments & Management
    MCE E105C Design of Special Structures

Elective II

    MCE E106A Structural dynamics
    MCE E106B Design of Metal Structures
    MCE E106C Advanced Geotechnical Engineering

Semester II

1	MCE 201	Contracts and Legal Aspects in Construction	3	1	-	3
2	MCE 202	Construction Safety and Fire Engineering	3	1	-	3
3	MCE 203	Modern Construction Materials	3	1	-	3
4	MCE 204	Maintenance and Rehabilitation of Structures	3	1		3
5	MCE E205*	Elective III	4	-	-	3
6	MCE E206*	Elective IV	4	-	-	3
7	MCE 207	Industrial Training & Seminar	1	-	-	1
8	MCE 208	Building Technology & NDT Lab	-	-	3	1
		Total	**21**	**4**	**3**	**20**

Elective III

    MCE E205A Finite element method
    MCE E205B Computational Techniques
    MCE E205C MIS & Finance Management
    MCE E205 D Design of Prestressed structures

Elective IV

    MCE E206A Building services
    MCE E206B Ground Improvement Techniques
    MCE E206C Eco-friendly Constructions
    MCE E206D Innovative Construction Practices

Semester III

1	MCE 301	Research Project	15	-	-	15
		Total	**15**	**-**	**-**	**15**

Semester IV

1	MCE 401	Research Project	-	-	-	17
		Total	**-**	**-**	**-**	**17**
	Total Credits (Semester I to IV)		72			

M. TECH IN ELECTRICAL AND ELECTRONICS ENGINEERING
(Specialization: Power Electronics)

Sl. No.	Course Code	Subject	L	T	P	Credits
(1)	(2)	(3)	(4)	(5)	(6)	(7)

Semester I

1	EEPE101	Optimization Techniques	3	1	..	3
2	EEPE102	Power Electronics Circuits	3	1	..	3
3	EEPE103	Modern Control Theory	3	1	..	3
4	EEPE104	Advanced Digital Signal Processing	3	1	..	3
5	EEPE105*	Elective I	4	..	..	3
6	EEPE106*	Elective II	4	..	..	3
7	EEPE107	Seminar	1	..	..	1
8	EEPE108	Modeling & Simulation Laboratory	..	..	3	1
		Total	**21**	**4**	**3**	**20**

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Elective I						
	EEPE105A	Energy Management in Electrical System				
	EEPE105B	Industrial Instrumentation				
	EEPE105C	Process Control & Instrumentation				
	EEPE105D	System Dynamics				
Elective II						
	EEPE106A	Computer Networking				
	EEPE106B	Digital Simulations of Power Electronic System				
	EEPE106C	Soft Computing				
	EEPE106D	Switched mode Power Converters				
		Semester II				
1	EEPE201	Advanced Power Electronics Circuits	3	1	_	3
2	EEPE202	Power Quality	3	1	_	3
3	EEPE203	Flexible AC Transmission	3	1	_	3
4	EEPE204	Power Electronics Drives	3	1	_	3
5	EEPE205*	Elective III	4	_	_	3
6	EEPE206*	Elective IV	4	_	_	3
7	EEPE207	Industrial Training & Seminar	1	_	_	1
8	EEPE208	Power Electronics and Drives Laboratory	_	_	3	1
		Total		**20**		
Elective III						
	EEPE205A	Research Methodology				
	EEPE205B	Engineering Optimization				
	EEPE205C	Industrial Communication				
	EEPE205D	Extra High Voltage AC & DC Transmission				
Elective IV						
	EEPE206A	Digital Control Systems				
	EEPE206B	Microcontroller Based Systems				
	EEPE206C	Distributed Generation				

Course Code	Subject	No. of Credits
	Semester III	
EEPE301	Research Project	15
	Total	**15**
	Semester IV	
EEPE401	Research Project	17
	Total	**17**
	Total Credits (Semester I to IV)	72

M. TECH. (FULL TIME) DEGREE COURSE IN MECHANICAL ENGINEERING

(Specialization: Energy Management)

Scheme of Examination

Course Code	Subject	No. of Credits
Semester I		
EM 101	Numerical Methods in Heat Transfer	3
EM 102	Energy Conversion Systems	3
EM 103	Solar Energy Engineering	3
EM 104	Electrical Energy Systems and Management	3
EM 105	Elective I	3
EM 106	Elective II	3
EM 107	Seminar I	1
EM 108	Computational Laboratory	1
	Total	**20**

Elective I

EM 105 (A)	Economics of Energy Engineering	
EM 105 (B)	Process Reliability Engineering	
EM 105 (C)	Energy Policies for Sustainable Development	

Elective II

EM 106 (A)	Energy Systems Modelling and Analysis	
EM 106 (B)	Management tools in Engineering Design	
EM 106 (C)	Vehicle Power Management	

Course Code	Subject	No. of Credits
Semester II		
EM 201	Energy Conservation in Thermal and Electrical Systems	3
EM 202	Energy Audit and Management	3
EM 203	Renewable Energy Technology	3
EM 204	Energy and Environment	3
EM 205	Elective III	3
EM 206	Elective IV	3
EM 207	Seminar II	1
EM 208	Solar Energy Engineering Laboratory	1
	Total	**20**

Elective III

EM 205 (A)	Heat Transfer in Energy Systems	
EM 205 (B)	Emerging Refrigeration Technologies	
EM 205 (C)	Thermal Energy Storage Systems	

*Elective IV

EM 206 (A)	Optimum Utilization of Heat and Power	
EM 206 (B)	Safety Technology and Management	
EM 206 (C)	Research Methodology	

Course Code	Subject	No. of Credits
Semester III		
EM 301	Project - Progress Evaluation	15
	Total	**15**
Semester IV		
EM 401	Project - Progress Evaluation	17
	Total	**17**

No. Conf.II/2941/3/2012 (1).   *20th January 2014.*

Read:—Notification No. Conf. II/2941/3/2012(1) dated 4-5-2013.

In exercise of powers conferred by Section 24 (ii) read with section 42 (1) of CUSAT Act 1986, the Academic Council at its meeting held on 22-11-2012 approved the following:

1. Regulations and Scheme of Examination for the Certificate and Diploma Course in Italian with effect from Academic Year 2012-13 onwards as in Appendix-I.

2. List of Electives for M. Phil Degree Course in Hindi (Course 2-HIN 4102 Elective: Area of Research of M. Phil in Hindi Course, regulation 2010) with effect from the Academic Year 2011-12 as in Appendix-II.

The Syndicate at its meeting held on 19-11-2013 vide item 605.50 resolved to ratify the action taken by the Vice-Chancellor having approved the above.

Cochin University P. O.,   (Sd.)
Kochi-22.   *Professor in-charge of Registrar.*

APPENDIX-I

CERTIFICATE COURSE IN ITALIAN

Regulations

1. Duration

The Course is conducted for six hours a week during one academic year. This is a part-time course and classes shall be held in the evening after 5 p. m. The classes are held thrice a week.

2. Aim of the Course

To teach the students to read, write and communicate in Italian, giving importance both to the written and spoken aspects of the language. Since our students would like to apply their knowledge of Italian in their respective fields of activities we have given thrust to the active communicative skills of the language while formulating the syllabus.

3. Eligibility

Candidates for admission to the Certificate Course in Italian shall be required to have passed Pre-Degree/Plus Two Examination or equivalent thereto of any University recognized by CUSAT. Previous knowledge in the language concerned is not essential.

4. Course work

The Course work for the study for the Certificate in Italian shall be according to the Scheme of Examination and Syllabus prescribed. No candidate is eligible for these Examinations unless he/she has undergone the prescribed Course in the Department under the University for one academic year and has passed all the prescribed tests and assignments.

The minimum attendance required by a Candidate will be 75% of the total number of working days.

5. Scheme of Examination

There will be University Examination at the end of the Course in the subjects prescribed under the Scheme of Examination. There shall be two written papers and a viva-voce as detailed in the Scheme of Examination.

6. Gradation

A candidate should get a separate minimum of 50% in each paper and an aggregate minimum of 50% in the examination. A minimum of 50% in viva-voce is also essential. Those who get 50% and above but below 60% shall be declared to have passed the examination in Second Class. Candidates who get 60% and above but below 75% shall be declared to have passed the examination in First Class. Candidates who secure 75% and above shall be declared to have passed with Distinction.

Scheme of Examination

The examination will consist of two parts: written and oral. The written examination shall have two papers.

Part I – Written Examination   **Total Marks: 200**

Paper 1 – Grammar	Duration: 3 hours.	Internal	50	
		External	50	100

The Internal Assessment shall be based on attendance, active participation in classroom and correct and regular submission of assignments.

Paper II – Translation	Duration: 3 hours.	Internal	50	
		External	50	100

(a) Translation from Italian into English   20 Marks

(b) Translation from English into Italian   15 Marks

(c) Answers to specific situations   10 Marks

(d) Composition   05 Marks

Part II – Oral Examination   **Total Marks: 100**

(a) General conversation relating to the candidate's life, profession, hobbies, etc.   30 Marks

(b) Dialogue in pair on a given situation known to the candidate   25 Marks

(c) Description and discussion of a given photo   25 Marks

(d) Listening test   20 Marks

MODEL OF EXAMINATION: PART I – WRITTEN EXAMINATION

Paper – I Grammar

Time: 3 hours.   Maximum Marks: 50

(I) *Completa le frasi scegliendo tra (a), (b) o (c).*   *(5 punti)*

    (1) Il mio compleanno è (a) il (b) nel (c) al _____ 19 gennaio.

    (2) Paolo è (a) il mio (b) mio (c) le mio _____ fratello.

    (3) (a) Quei (b) Quelli (c) Quegli _____ alberghi sono sempre pieni.

    (4) Lavoro in questo ufficio (a) da (b) fa (c) su _____ tre anni.

    (5) Il treno (a) per (b) da (c) a _____ Milano parte dal binario 8.

(II) *Passato prossimo e imperfetto. Coniuga i verbi al tempo giusto.*   *(5 punti)*

    Quando Franco (arrivare) _____ per la prima volta a Venezia, ha preso il ferryboat ed (andare) _____ verso Piazza San Marco, per vedere un famoso museo. Quel giorno però (fare) _____ molto caldo, nel museo (esserci)

    _____ tante persone e inoltre l'aria condizionata non (funzionare) _____.

(III) *Completa le frasi coniugando i verbi tra parentesi all'imperfetto.*   *(5 punti)*

    (1) Teresa, tu dove (andare) _____ in vacanza da bambina?

    (2) Voi (vivere) _____ in campagna vero?

    (3) Mia nonna (fare) _____ sempre la pasta fatta in casa.

    (4) Quando (noi - andare) _____ all'università, (studiare) _____ moltissimo.

(IV) *Completa le frasi coniugando i verbi tra parentesi al condizionale.* *(5 punti)*
Giovanni sogna …

Quanto (io/volere) _____ vincere alla lotteria! Gioco tutte le settimane e so
gia' esattamente cosa (fare) _____ con i soldi. Prima di tutto (organizzare)
_____ una grande festa per tutti gli amici.
La festa (potere) _____ continuare per una settimana, poi mi (iniziare)
_____ a pensare come investire i miei soldi!

(V) *Sottolinea il pronome corretto.* *(10 punti)*

(1) Hai visto il mio cellulare? gli / l' / le ho cercato per due ore … temo di aver ci / lo / la perduto.

(2) Anna ha freddo, puoi portar lo / li / le un maglione?

(3) Chiamate si / gli / mi quando arrivate in Italia.

(4) Ho visto tua mamma e ci / le / la ho dato la tua lettera.

(5) Quanti libri hai letto quest'estate? li / ne / gli ho letti cinque.

(6) Non mi piacciono i film del terrore, non andrò mai a veder lo / le / li.

(7) Hai fatto un'altra torta? Posso assaggiar mi / la / le ?

(8) Quanti anni ha tua madre? Non ci / ti / lo ricordo.

(9) Pronto? … Ciao Franca, vorrei veder ti / gli / si oggi, ma non so se avrò tempo.

(VI) *Completa l'intervista di Claudia coniugando i verbi tra parentesi al futuro.* *(5 punti)*

Giornalista: "Che progetti hai per il futuro?"

Claudia: "Dopo il diploma (continuare) _____ a studiare, (andare) _____
all'università e (diventare) _____ veterinaria o infermiera; lo so che sono due
cose diverse, mia mamma dice che cambio idea spesso, ma di una cosa sono sicura (studiare)
_____ e (fare) _____ un lavoro utile."

(VII) *Dai dei consigli a un amico, inserendo correttamente i seguenti verbi e coniu gandoliall'imperativo.*
Quando è necessario usa la forma negativa.
I verbi non sono nell'ordine corretto. *(5 punti)*

Bere / fumare / andare / bere / mangiare /

Se hai problemi ad addormentarti _____ troppo a cena, _____
caffè, _____ invece un po' di acqua calda, _____ troppe sigarette, e _____
a letto sempre alla stessa ora.

(VIII) *Rispondi in italiano con delle frasi complete a 5 delle seguenti domande* *(5 punti)*

(1) Chi è Dante? _____

(2) Quanto costa questa camicia? _____

(3) Hai visto la mia borsa? L'avevo messa sul tavolo ma non la trovo più _____

(4) Sai da dove parte la corriera per andare a Roma? _____

(5) Quante volte vai al cinema in un anno e che film preferisci? _____

(6) Finalmente siamo a Venezia! Ti piace? _____

(7) Stasera possiamo invitare alcuni amici a cena, cosa ne dici di invitare Mario e Claudia?
O preferisci che invitiamo Giovanna e Roberto? …. O tutti e quattro?_____

(IX) *Leggi questo testo e sottolinea il pronome relativo corretto* *(5 punti)*

Un viaggio in Italia potrebbe essere motivato solo dal desiderio di conoscere e gustare la sua cucina.
Quella dei più celebri ristoranti delle città famose per la loro gastronomia, ma anche quella delle piccole
trattorie **chi / che / in cui** si trovano in ogni paesino d'Italia, e la **chi / cui / che** specialità consiste
nella rielaborazione di piatti tradizionali regionali.
Naturalmente anche **chi / cui / per cui** ama l'arte ama l'Italia! Un Paese **chi / da cui / che** ospita musei,
cattedrali, chiese, monasteri, conventi, ville, palazzi e castelli **in cui / cui / che** si trova oltre la metà delle
opere d'arte del mondo.

Paper – II Translation

Time: 3 hours.   Maximum Marks: 50

(A) Traduci in inglese il seguente testo: *(20 punti)*

Roma

Roma, città di storia, di arte e di tradizione, è la capitale d'Italia. Ha circa tre milioni di abi-tanti ed e la sede del parlamento nazionale.

Migliaia di turisti da ogni parte del mondo sono ogni anno a Roma per visitare i suoi monumenti più celebri, come Piazza Navona, il Foro Romano, il teatro Marcello, Trinità dei Monti, Piazza di Spagna.

Il Colosseo è forse il monumento più famoso di Roma. Costruito dall'imperatore Vespasia-no e dal figlio Tito, ha duemila anni di vita. È lungo 156 metri, alto circa 50.

È il simbolo dell'eternità di Roma.

La Fontana di Trevi è una delle più belle fontane di Roma e fra le più celebri del mondo. Secondo una tradizione popolare i turisti che gettano una moneta nella fontana sono sicuri di tornare ancora a Roma.

Infine Piazza San Pietro: è una piazza monumentale, capolavoro di Bernini. Ci sono 284 colonne, che chiudono una grande superficie, come due grandi braccia.

Al centro c'è un obelisco alto 25 metri. Ai lati dell'obelisco ci sono due bellissime fontane.

In fondo la più imponente basilica della cristianità, cuore del mondo cattolico.

(B) Traduci in italiano il seguente testo: *(15 punti)*

Sardinia

The local dishes are frequently celebrated through fairs and festivals, which re-enact old traditions and are attended in full force by the villagers, often wearing historical costumes.

Sardinia's animal and plant life is protected by natural parks, reserves and oases. Even in Cagliari's hinterland, one of the most urbanized areas, the conservation of the local habitats is safeguarded by the Parco del Molentargius, which hosts also a large colony of flamingos. The coastline offers plenty of opportunities to enjoy of marine sports, while Sardinia's interior is an ideal choice to engage in open-air activities, like riding, hiking and walking. So, if you want to savour every corner of this island, take your fins as well as a good pair of trekking boots!

(C) Ti presentiamo alcune situazioni di comunicazione. Scrivi l'espressione più ade-guata per le 5 situazioni   *(10 punti)*

    (1)   Invita un tuo amico alla cena di fine corso al ristorante italiano.

    (2)   Sei in vacanza, ti ricordi che hai dimenticato di pagare l'ultima bolletta del telefono. Chiami tua sorella e le chiedi di pagarla.

    (3)   Un tuo amico ti invita a vedere una commedia di Shakespeare. Accetti con piacere e chiedi informazioni sull'indirizzo del teatro e l'orario dello spettacolo.

    (4)   Sei in un'agenzia di viaggio e chiedi informazioni sui voli per andare a Venezia (voli, o-rari, prezzi, ecc.).

    (5)   Sei al ristorante, hai finito di pranzare e ti accorgi di non avere soldi sufficienti per pagare il conto. Cosa dici al cameriere?

(D) Scrivi 100 parole su uno dei seguenti argomenti: *(5 punti)*

    (1)   Che cosa fai il fine settimana?

    (2)   Descrivi la tua città preferita.

    (3)   Descrivi una foto di te con la tua famiglia, con i tuoi amici, ecc.

Listening Test

Un invito a cena *(20 punti)*

Gigi e Anna hanno degli ospiti a cena e stanno decidendo il menu. Ascolta la conversazione e segna i 12 piatti che propongono per il menu.

Arrosto	☐	Melanzane alla parmigiana	☐
Carote	☐	Minestrone	☐
Cotolette	☐	Mozzarella	☐
Formaggio	☐	Pere cotte	☐
Frittata con le zucchine	☐	Petti di pollo	☐
Frutta fresca	☐	Pure di patate	☐
Gelato	☐	Risotto	☐
Insalata	☐	Spaghetti	☐
Macedonia	☐	Tortellini in brodo	☐

Ascolta ancora la conversazione e segna la casella con l'espressione corretta.

Fausto non mangia	il pesce	☐	
	la carne	☐	
	il formaggio	☐	
Gigi non mangia	la carne	☐	
	il pesce	☐	
	il formaggio	☐	
Gigi e Anna	hanno tempo	☐	per cucinare
	non hanno tempo	☐	per cucinare

DIPLOMA COURSE IN ITALIAN

Regulations

1. *Duration*

    The Course is conducted for eight hours a week during one academic year. This is a part-time course and classes shall be held in the evening after 5 p.m. The classes are held thrice a week.

2. *Aim of the Course*

    To develop the skill for independent reading and understanding of the texts in Italian. To develop the skill for conversation and independent translation of Italian by overcoming languages difficulties (synthetic reading). To the communicative skills are given more importance, so as to hold fluent conversation in Italian.

3. *Eligibility*

    Candidates for admission to the Diploma Course in Italian shall be required to have passed Pre-Degree/Plus Two examination or equivalent thereto of any University recognized by CUSAT and Certificate Course in Italian. Those who do not have a Certificate in Italian may also be admitted provided they pass an entrance test conducted by the Department concerned.

4. *Course work*

The Course work for the study for the Certificate in Italian shall be according to the Scheme of Examination and Syllabus prescribed. No candidate is eligible for these examinations unless he/she has undergone the prescribed Course in the Department under the University for one academic year and has passed all the prescribed tests and assignments.

The minimum attendance required by a Candidate will be 75% of the total number of working days.

5. *Scheme of Examination*

There will be University examination at the end of the Course in the subjects prescribed under the Scheme of Examination. There shall be two written papers and a viva-voce as detailed in the Scheme of Examination.

6. *Gradation*

A candidate should get a separate minimum of 50% in each paper and an aggregate minimum of 50% in the examination. A minimum of 50% in viva-voce is also essential. Those who get 50% and above but below 60% shall be declared to have passed the examination in Second Class. Candidates who get 60% and above but below 75% shall be declared to have passed the examination in First Class. Candidates who secure 75% and above shall be declared to have passed with Distinction.

Scheme of Examination

The examination will consist of two parts: written and oral. The written examination shall have two papers.

Part I – Written examination   Total Marks: 200

Paper 1 – Grammar	Duration: 3 hours.	Internal	50	
		External	50	100

The Internal Assessment shall be based on attendance, active participation in classroom and correct and regular submission of assignments.

Paper II – Translation	Duration: 3 hours.	Internal	50	
		External	50	100

(a) Translation from Italian into English	20 Marks
(b) Translation from English into Italian	15 Marks
(c) Answers to specific situations	10 Marks
(d) Composition	05 Marks

Part II – Oral Examination   Total Marks: 100

(a) General conversation relating to the candidate's life, profession, hobbies, etc.	30 Marks
(b) Dialogue in pair on a given situation known to the candidate	25 Marks
(c) Description and discussion of a given photo	25 Marks
(d) Listening test	20 Marks

MODEL OF EXAMINATION: PART I – WRITTEN EXAMINATION

Paper – I Grammar

Time: 3 hours.   Maximum Marks: 50

(I) *Completa le frasi scegliendo tra che o cui + preposizione.*   (*5 punti*)

(1) Questa è la macchina _____ abbiamo comprato. Ti piace?

(2) Signor Franceschini, questo è il ragazzo _____ Le ho parlato.

(3) Alessandra è l'amica _____ scrivo più spesso.

(4) È lo stesso campeggio _____ siamo stati noi l'anno scorso.

(5) Preferisco la pizza _____ abbiamo mangiato nell'altra pizzeria.

(II) *Completa le frasi con il condizionale passato.* *(5 punti)*

    (1)   Anziché seguire una dieta, (io - dovere) _____ fare un po' di gin-nastica.

    (2)   Anziché trascorrere la domenica a casa, (tu - potere) _____ uscire con me.

    (3)   Invece di lavorare tutto il giorno, (lei - preferire) _____strasene tranquilla a casa.

    (4)   Invece di investire tanti soldi in banca, (noi - potere) _____comprar-ci una villa.

    (5)   Invece di sgridarlo in quel modo, (lei - dovere) _____ prima ascol-tarlo.

(III) *Coniuga i verbi in parentesi al tempo giusto: verbi regolari, irregolari e riflessivi con diversi tempi verbali (in alcuni casi diverse soluzioni sono possibili)* *(10 punti)*

    (1)   La prossima estate, non appena tu (arrivare) _____ a Parigi, (dovere)_____ telefonarmi.

    (2)   Mia sorella (sposarsi) _____quando io (avere) _____quindici anni.

    (3)   Gli (dovere) _____ bastare questi soldi.

    (4)   Non le (piacere) _____ i funghi.

    (5)   Ieri voi (visitare) _____ il museo, tra dieci minuti (visitare) _____ la Torre di Pisa.

    (6)   L'altro ieri, mentre Lorenzo (scrivere) _____ una lettera, Antonella e Daniela (entrare) _____ nella stanza.

(IV) *Completa le frasi con il congiuntivo presente.* *(5 punti)*

    (1)   Laura e Sandro stanno cercando casa. Per loro è importante che l'appartamento (esse-re) ____ _____ in una zona tranquilla con molto verde e che (esserci) _____ dei negozi e una scuola.

    (2)   Per Maria, che ama tantissimo cucinare, è fondamentale che l'appartamento (avere) _____ una cucina grande.

    (3)   Ernesto suona il pianoforte. Per lui la cosa più importante è che i vicini non (lamentarsi) _____.

    (4)   La signora Valeri cerca un appartamento per sé e i suoi tre gatti. Per lei è necessario che (esserci) _____ un balcone e che i vicini (amare) _____ gli animali.

(V) *Riscrivi ogni frase passando dall'indicativo al congiuntivo.* *(5 punti)*

Esempio: Dice che sono già arrivati. → Crede che siano già arrivati.

    (1)   Dice che hanno guadagnato poco.

    (2)   Dice che l'India è diventata moderna.

    (3)   Dice che il professore ha spiegato il congiuntivo.

    (4)   Dice che i turisti hanno mangiato male.

    (5)   Dice che io ho studiato il meno possibile.

(VI) *Completa le frasi scegliendo la forma corretta tra alcuni/alcune/ognuno/qualche/qualcosa.* *(5 punti)*

    (1)   _____ ha diritto di essere felice.

    (2)   _____ italiano non ama mangiare la pasta e la pizza.

    (3)   _____ tradizioni sono condivise da differenti culture.

    (4)   Dovete fare _____ per aiutarlo.

    (5)   _____ preferiscono mantenere le proprie abitudini.

(VII) *Completa le frasi usando la forma appropriata del comparativo irregolare fra quelli elencati.* *migliori / peggiore / meglio / migliori / migliore.* *(5 punti)*

    (1) Questa macchina è _____ della mia.

    (2) Questi orologi sono _____ di quelli.

    (3) Il pane del fornaio sarà certamente _____ di quello comprato al supermercato.

    (4) Ieri l'India ha giocato _____ del Pakistan.

    (5) Le mie risposte erano sempre _____ delle vostre.

(VIII) *Trasforma le seguenti frasi dalla forma attiva a quella passiva.* *(5 punti).*
Esempio: Chi ha costruito questa casa? (mio padre)
→ **Questa casa è stata costruita da mio padre.**

    (1) Chi ha dipinto le Stanze del Vaticano? (Raffaello)

    (2) Chi ha scritto la Divina Commedia? (Dante Alighieri)

    (3) Chi ha visitato Venezia? (molti turisti)

    (4) Chi ha fatto il compito senza errori? (Carla)

    (5) Chi ha ordinato una pizza? (io)

(IX) *Volgi le frasi al discorso indiretto, usando i verbi tra parentesi.* *(5 punti)*
Esempio: Non posso venire in questo momento. (disse)
→ **Disse che non poteva venire in quel momento.**

    (1) Questo libro è mio! (disse)

    (2) Devo essere a casa prima di mezzanotte. (diceva)

    (3) Guardiamo la televisione. (hanno risposto).

    (4) Mia sorella parla bene il francese. (Anil dice)

    (5) Questa è la città dove abito. (Kochi, Deepa disse)

MODEL OF EXAMINATION: PART I – WRITTEN EXAMINATION
Paper – II Traslation

Time: 3 hours.   Maximum marks: 50

(A) Traduci in inglese il seguente testo: *(20 punti)*

Slow Food e Fast Food

Quando sono arrivata in Italia la prima volta mi ha sorpreso che persino gli studenti universitari tro-vavano il tempo a pranzo di cucinarsi la pasta e sedersi per mangiare tutti insieme. Era un compito piuttosto semplice eppure lo svolgevano con estrema cura, preparando addirittura la tavola con to-vaglia e tovaglioli. Alla fine mi hanno insegnato a cucinare la pasta "nel modo giusto": quando ag-giungere il sale, come assaggiarla, quale tipo di pasta si poteva accompagnare a quale tipo di con-dimento. È stata la mia prima lezione di Slow Food all'italiana, e di sicuro non è stata l'ultima.

ll movimento Slow Food è ancora fiorente in Italia, nonostante l'invasione di ristoranti fast food che servono fette di pizza, hot dog e l'onnipresente hamburger con patatine. Ovunque nel paese è anco-ra possibile trovare piatti preparati alla maniera tradizionale sia al ristorante che nelle case.

(B) Traduci in italiano il seguente testo: *(15 punti)*
Marco Polo

Marco Polo deserves our gratitude for providing relevant information about Buddha's life. Thus, for instance, with a mixture of respect and admiration, he concludes his narration on «Sagamoni Bor-can» (Sâkyamuni): «And so when the king's son had thus learned about the dead man and the aged man, he turned back to his palace and said to himself that he would abide no longer in this evil world, but would go in search of Him Who dieth not, and Who had created him. So what did he one night but take his departure from the palace secretly, and betake himself to certain lofty and pathless mountains. And there he did abide, leading a life of great hardship and sanctity, and keeping great abstinence, just as if he had been a Christian. Indeed he would have been a great saint of Our Lord Jesus Christ, so good and pure was the life he led».

(*C*) *Ti presentiamo alcune espressioni. Per ogni espressione ti presentiamo quattro possibili situazioni di comunicazione. Scegli la situazione più adeguata per ogni e-spressione.* *(10 punti)*

(*1*) *Gradiremmo sapere se siete ancora interessati alla nostra offerta. Vi preghiamo di con-fermare entro 24 ore.*

    (A) Telefono a un'agenzia di viaggi per sapere se ci sono promozioni di viaggi.

    (B) Tua sorella ti chiede conferma di un appuntamento che avete fissato per questa setti-mana.

    (C) L'agenzia turistica a cui hai chiesto per un viaggio chiede la tua conferma.

    (D) Su un giornale hai letto un annuncio che pubblicizza sconti su un viaggio all'estero.

(2) In periferia vendesi monolocale con garage e piccolo giardino. Telefonare ore pasti al numero 333.444.555.

    (A) E un annuncio di un'agenzia immobiliare per la vendita di un appartamento.

    (B) E un messaggio scritto sulla porta di casa di un vicino che vuole vendere il suo appartamento.

    (C) E un messaggio voce registrato su una segreteria telefonica.

    (D) E un annuncio di un'agenzia immobiliare per l'affitto di un appartamento.

(3) Ecco la mappa che cercava. Troverà anche l'elenco degli alberghi.

    (A) Un annuncio sul giornale pubblicizza una guida con la mappa della città.

    (B) Un tuo compagno di viaggio ti dà la mappa della città che cercavi.

    (C) Per strada un signore ti dà informazioni per orientarti in città.

    (D) In un ufficio informazioni un'impiegata ti consegna la mappa della città.

(4) "Signora, prego, vuole sedersi? Io scendo alla prossima fermata".

    (A) In un ufficio pubblico, offri il tuo aiuto alla signora in fila vicino a te che non sta bene.

    (B) Su un autobus, cedi il tuo posto a sedere ad una signora che è rimasta in piedi.

    (C) A teatro, fai sedere una signora al tuo posto.

    (D) In casa, offri una sedia a una tua amica che è venuta a trovarti.

(IV) Scrivi 150 parole su uno dei seguenti argomenti: *(5 punti)*

    (1) Descrivi una foto di te con la tua famiglia, con i tuoi amici, ecc.

    (2) Racconta un episodio della tua infanzia o inventa l'episodio.

    (3) Descrivi una vacanza che ti piacerebbe fare.

MODEL OF EXAMINATION: PART II – ORAL EXAMINATION

Listening Test

"II tempo è solo una scusa" *(20 punti)*

*Ascolta il dialogo tra Francesca e suo marito Ernesto e decidi se le seguenti affermazioni sono vere (**V**) o false (**F**)*

		V	F
1.	Francesca cerca di convincere suo marito ad andare in palestra.		
2.	Ernesto dice che purtroppo non ha tempo.	☐	☐
3.	Francesca si preoccupa per la salute di suo marito.	☐	☐
4.	Francesca dice a suo marito che è troppo grasso.	☐	☐
5.	Ernesto dice che tutti i suoi amici fanno sport.	☐	☐
6.	Secondo Ernesto fare sport è diventato una moda.	☐	☐
7.	A Francesca piacciono gli uomini con i muscoli.	☐	☐
8.	Ernesto decide di andare a giocare a calcio.	☐	☐

THE ELECTIVES OF THE M.PHIL DEGREE

Course 2 - HIN 4102 Elective : Area of Research

      HIN 4102 A - ANCIENT AND MEDIEVAL HINDI POETRY

      HIN 4102 B - MODERN HINDI CRITICISM

      HIN 4102 C - MODERN HINDI DRAMA

      HIN 4102 D - MODERN HINDI NOVEL

      HIN 4102 E - MODERN HINDI POETRY

      HIN 4102 F - MODERN HINDI SHORTSTORY

      HIN 4102 G - AUTOBIOGRAPHY AND BIOGRAPHY IN HINDI

      HIN 4102 H - ESSAYS, SKETCHES AND OTHER PROSE FORMS

      HIN 4102 I - LINGUISTICS

      HIN 4102 J - COMPARATIVE LITERATURE

      HIN 4102 K- TRANSLATION STUDIES

NOTIFICATION

No. Conf.II/2941/3/2012 (2)   *20th January 2014.*

      Read:—Not. No. Conf.II/2941/3/2012 (2) dated 4-5-2013.

      In exercise of the powers conferred by Section 24 (ii) read with Section 42 (1) of the CUSAT Act 1986, the Academic Council at its meeting held on 22-11-2012 resolved to approve the modification in Clause 11 of the Regulation for B.Sc. Nursing following:

      The number of attempts for examination has been waived off. However to appear for the final year examination the candidate shall have cleared all previous examinations with effect from 2009 admission.

      The Syndicate at its meeting held on 19-11-2013 vide item 605.50 ratified the action taken by the Vice Chancellor in having approved the above.

Cochin University P.O.,   (Sd.)
Kochi-682 022.   *Professor in-charge of Registrar.*

NOTIFICATION

No. Conf.II/2941/3/2012 (3)   *20th January 2014.*

      Read:—(1) Not. No. Conf.II/2941/3/2012 (1) dated 11-2-2013.

            (2) Not. No. Conf.II/2941/3/2012 (3) dated 4-5-2013.

      In exercise of the powers conferred by Section 24 (ii) read with Section 42 (1) of the CUSAT Act 1986, the Academic Council at its meeting held on 22-11-2012 resolved to approve the following:

      1. Regulation for one year PG Diploma Course in Intellectual Property Laws (PGDIPL) with effect from 22-11-2012, the date of meeting of the Academic Council as in Appendix-I.

      2. Regulation and scheme of Examination for the 5 year Integrated Dual Degree Programme in MIP Ph.D. Degree and LL.M (IPR) Ph.D Degree with effect from 22-11-2012, the date of meeting of the Academic Council as in Appendix-II.

      3. Regulation and scheme of Examination for the BBA; LL.B (Hons.) course with effect from 2013 admission as in Appendix-III.

      The Syndicate at its meeting held on 19-11-2013 vide item 605.50 resolved to ratify the action taken by the Vice-Chancellor in having approved the above.

Cochin University P.O.,   (Sd.)
Kochi-22.   *Professor in-charge of Registrar.*

PG DIPLOMA IN INTELLECTUAL PROPERTY LAWS (PGDIPL)

REGULATIONS AND SYLLABUS

Faculty of Law

(As approved by the Academic Council meeting held on 22nd November 2012)

Regulations

1. *Admission to the Course:*—Candidates for admission to the PG Diploma in Intellectual Property Laws (PGDIPL) shall be required to have passed the Bachelor's Degree in law, economic, political science, history, management, science and technology from any of the Universities in Kerala or an examination of any other University accepted by the Syndicate as equivalent thereto, and to have obtained rank in the Common Admission Test conducted by the University. Scheduled Castes/Scheduled Tribe candidates are eligible for concession admissible under the orders of the Government.

The reservation rules governing admission to PGD Courses made by the Government shall be followed in making admissions.

1. Admission to the course shall be based on the performance of the candidate at the Common Admission Test (CAT).

2. The CAT shall consist of two parts as given below:

    (a) Part I – Proficiency in English, Analytical and other abilities and general knowledge.

    (b) Part II – Aptitude to study Intellectual Property Laws.

3. Rank list for admission to the course shall be prepared on the following basis:

    (a) Part I of CAT   :   60% weightage

    (b) Part II of CAT   :   40% weightage

Matters concerning admission procedure, payment of fees etc., will be prescribed by Rules, published in the prospectus for the course from time to time.

2. Eligibility for the diploma:—No candidate shall be eligible for the PGDIPL , unless he has undergone the prescribed Core and Elective courses of study in the Inter University Centre for IPR Studies (IUCIPRS) under the University, for not less than one academic year and has passed the prescribed examinations according at least 24 credits out of which at least 16 credits shall be in core courses offered by the IUCIPRS.

3. Duration and contents of the course:—(i) The course for the PGDIPL of the University is of one academic year consisting two semesters. Each semester will be of 16 to 18 weeks of teaching followed by an end semester examination conducted by IUCIPRS.

(ii) A student shall, in the course of two semesters undergo instruction in Core Courses consisting of 16 credits and Elective Courses consisting of 8 credits as follows:

Total Credit—24

Semester	Title of the Course	Nature	Credits	Internal
First	1. General Principles of IPR (100 marks)	Core	4	100
	2. Patent Drafting and Filing (National and International) and Enforcement of Rights (100 marks)	Core	4	100
	3. Trademarks Drafting and Filing (National and International) and Enforcement of Rights (100 marks)	Core	4	100
Second	4. Transfer of Technology (100 marks)	Core	4	100
	5. Electives—(2) Or Project Work/Internship	Elective	4	100
	a. Elective – 1			
	b. Elective – 2	Elective	4	100
	Or	Or	Or	Or
	Project Work/Internship	Elective	8	200
	Total		**24**	**600**

Elective Courses

Teachers shall notify the elective courses including elective course on project work/internship proposed by them to be offered in subjects in the beginning of the Academic year. This will facilitate the students to choose the elective courses in advance. In case the teacher offers project work/internship as an elective course the student in addition to the submission of the written work shall have to conduct a seminar based on the final conclusion of the work.

The students shall have the option to substitute the elective courses by equivalent courses from the IUCIPRS or other Departments/Schools/Centres of CUSAT.

The academic calendar for each year giving details of the courses offered in each semester will be notified in the beginning of the year for each batch of students admitted for the PGDIPL Course.

Explanation: *Project work/internship:-*

(i) A Candidate may opt for preparing a project work/internship carrying 8 credits in the place of elective courses.

(ii) The project work shall be prepared under the guidance of teacher offering the course and internship in placement with a law office, legal division or a corporate office etc. The area of the project work, methodology, pattern of presentation etc. etc., shall be determined by the teacher concerned based on the proposal submitted by the student. The area must invariably have some practical application of the law. The teacher offering the course shall take steps to identify the place of practical work and correspond with the persons. In the case of internship, the student has to do internship in a law firm listed in the panel of law firms identified by the Centre for that purpose and the successful completion of internship will be based on the Certificate from the concerned law firm and evaluation of the work done by the candidate by the Faculty Council based on the report and seminar presentation.

(iii) Generally a teacher may not be allowed to take more than 15 candidates for preparing project work. However the Faculty Council may, if the situation so demands permits a teacher to take more than fifteen students but in no case shall he be permitted to take more than twenty.

(iv) Teachers entrusted with the supervision of the project work shall help the student in identifying, analyzing and presentation of the problem in the project work. Since it is in the place of elective courses, the teacher's input should be equivalent to the work he might otherwise put in teaching two courses having 4 credits each.

(v) The project work may be organized by the Faculty Council depending upon the infrastructural facilities and availability of faculty in every year.

(vi) Only after the supervising teacher approves and signs up the project work the candidate shall be permitted to submit the report and present the seminar.

(vii) The student shall maintain a diary giving the details of the days he attended in the place of internship, details of the work undertaken etc. and must be signed regularly by the person with whom he worked. This shall be submitted along with the written work to the teacher for final approval.

(viii) The approved project work/report of internship shall be submitted to the Centre 15 days before the completion of the II Semester.

4. Examinations:—

(a) The evaluation of all the courses shall be internal by the teacher/s offering the courses.

(b) The evaluation for the core/elective papers other than project work is based on an overall assessment of the performance of the student during the semester. The scheme of evaluation is as follows:

      (i)   Presentation of class assignment   10 marks

      (ii)   Participation in the class   10 marks

      (iii) Written assignment   10 marks

      (iv) Midterm written examination   20 marks

      (v)   End term written examination   50 marks

(c) The teacher shall publish all the marks within 10 working days of conducting the evaluation and also give copies of all the written papers with the marks awarded on request of students.

(d) For the evaluation of project work/internship the Faculty Council shall identify another teacher who will be evaluating the project work/internship and conduct the seminar for the students along with the teacher offering the course.

(e) The seminar shall be conducted within 30 days after the end of the II semester.

(f) The written work consists of 150 marks and 50 marks for the performance in the seminar. The teachers shall independently evaluate the project work/report of internship and presentation of the seminar and average obtained shall be taken as final grade. The result shall be published within 10 working days after the completion of the seminar.

(g) A candidate who has failed to secure the minimum marks for the project work may submit following the above procedure a new or revised project work before the commencement of the PGDIPL Examination of the next year or the year in which he proposes to sit for the PGDIPL Examination within a period of two years from the year of completion of the course.

Explanation:—

(1) The identification of the topic for preparing project work/internship is done by the candidates in consultation with the teacher but the collection and collation of the material have necessarily to be undertaken by the candidate as per the scheme of his/her programme. The organisation of the material and the orderly discussion with appropriate references and suggestions for improvements are to be done by the candidate himself/herself. The research methodology, generally speaking, is to be determined in consultation with the teacher. The idea is to make him/her capable of writing a paper on any subject having practical importance in his/her professional life.

In view of the above the candidates' performance may be evaluated in the following method:

Total marks allotted to project work/internship		:	150
(a)	Importance and relevance of the topic	:	10
(b)	Adequacy of material	:	20
(c)	Nature and extend of practical work	:	50
(d)	Organization and presentation including language	:	20
(e)	Suggestions	:	30
(f)	Punctuation and footnoting	:	20
	Total	:	150

Though this is generally stated an examiner who is impressed by the general get up of the work may have freedom to make necessary adjustments in marking for the above ingredients. The idea is not at all to restrict the freedom of the examiner. This structuring is resorted to help the examiner decide the quality of the project work/internship.

(2) The purpose of presentation of the paper is to make sure that the student has done the work undependably. This is to evaluate the ability of the student to communicate and answer the questions. The idea is to develop the necessary communication skills that are necessary for his/her professional life.

In view of the above the candidates' performance may be evaluated in the following method:

(i)	Content of the presentation	:	20 marks
(ii)	Organization and presentation	:	10 marks
(iii)	Language and style	:	5 marks
(iv)	Answering questions	:	10 marks
(v)	Overall impression	:	5 marks

5. Classification:

The following Grades will be awarded based on the overall performance in each course.

Range of marks		Grade	Weightage
90%		S- Outstanding	10
80	90 %	A- Excellent	9
70	80 %	B-Very Good	8
60	70 %	C-Good	7
50	60 %	D-Satisfactory	6
50%		Failed	0

Overall performance at the end of the semester will be indicated by Grade Point Average (GPA) calculated as follows:

$$\text{GPA} = \frac{GICI + G2C2 + G3C3 + \ldots\ldots\ldots\ldots\ldots GnCn}{C1 + C2 + C3 + \ldots\ldots\ldots\ldots\ldots Cn}$$

Where 'G' refers to the grade weightage and 'C' refers to the credit value of corresponding course undergone by the student.

Classification	CGPA
First Class with distinction	9 and above
First Class	7 and above
Second Class	6

6. Grievance Committee

(a) In case any student is not satisfied with the evaluation of the written part of the course by the teacher he shall within 10 working days of publication of the result make a written request to the Director, IUCIPRS with the copy of the evaluated written paper as returned by the teacher to review the result.

(b) The Director within two working days shall place the matter before the Faculty Council and the Faculty Council if satisfied by the request of the student shall constitute a committee of three teachers other than the teacher who offered the course to look into the grievance.

(c) The Grievance Committee within seven working days after giving opportunity to the student and the teacher who offered the course shall take a final decision. If the Committee is satisfied with the grievance of the student the Committee shall recommend to the Vice-Chancellor of CUSAT to send the written papers to one of the three experts in the field identified by the Committee from the list of five experts given by teacher who offered the course. In case the teacher fails to give the list the experts shall be identified by the Committee.

(d) In case there is a difference of more than 15% of marks in the evaluation of the expert, the student shall be awarded the marks given by the expert and the results revised accordingly.

7. Revision of Regulations and Curriculum

The University may from time to time revise, amend or change the Regulations, scheme of Examinations and the syllabus. In the case of students already undergoing the course the changes will take effect from the beginning of the following academic year after the changes are introduced, and shall cover the part of the course that remains to be completed. These regulations are effective from 2013 admission onwards.

5 YEAR INTEGRATED DUAL DEGREE PROGRAMMES
MIP, Ph.D DEGREE & LL.M (IPR), Ph.D DEGREE
Faculty of Law
REGULATIONS
(As approved by the Academic Council meeting held on 22nd November 2012)

1. *Admission to the Course:*—(1) Candidates for admission to the integrated 5 year Master of Intellectual Property (MIP) Ph.D Degree and LL.M (IPR), Ph.D Degree with specialization in IPR subjects [hereinafter MIP, Ph.D and LL.M(IPR), Ph.D Degree] shall be required to have passed the Bachelor's Degree examination in Law, Economics, Political Science, History, Management and Science and Technology with 55% from any of the Universities in Kerala or an examination of any other University accepted by the Syndicate as equivalent thereto, and to have obtained rank in the Common Admission Test conducted by the University. Candidates with Bachelor's Degree in Law alone are eligible for admission to LL.M (IPR) Ph.D Degree. Candidates with other Bachelor's Degree are eligible for admission to MIP, Ph.D Degree. However a candidate with LL.B degree may opt for MIP, Ph.D Degree at the time of admission. Scheduled Castes/Scheduled Tribe candidates are eligible for concession admissible under the orders of the Government.

2. The reservation rules governing admission to Masters Programs made by the Government shall be followed in making admissions.

3. Admission to the course shall be based on the performance of the candidate at the Common Admission Test (CAT).

    (a) The CAT shall consist of two parts as given below:

        (i) Part I – Proficiency in English and General Knowledge.

        (ii) Part II – Proficiency in the analytical and reasoning capability and aptitude to do research.

    (b) Rank List for admission to the course shall be prepared on the following basis :

Part I of CAT	:	50% weightage
Part II of CAT	:	50% weightage

4. Matters concerning admission procedure, number of seats, payment of fees, etc., will be prescribed by the authorities and published in the prospectus for the course from time to time.

2. *Eligibility for the degree:*—(1) No candidate is eligible for the Degree of MIP, Ph.D, unless he has a Bachelor's Degree in Economics, Political Science, History, Management, Law and Science and Technology and undergone the prescribed Core and Elective courses of study in the Inter University Centre for IPR Studies under the University, for not less than five academic years and has published two research papers in the prescribed journals in India or abroad and passed the prescribed examinations according at least 168 credits in core and elective courses offered by the Inter University Centre for IPR Studies with a CGPA of 7 points (C grade 60%). Candidates are allowed to substitute the elective courses by equivalent courses from the Centre or other Departments/Schools/Centers.

(2) No candidate is eligible for the Degree of LL.M (IPR), Ph.D, unless he has a Bachelor's Degree in Law and undergone the prescribed Core and Elective courses of study in the Inter University Centre for IPR Studies under the University, for not less than five academic years and has published two research papers in the prescribed journals in India or abroad and passed the prescribed examinations according at least 168 credits in core and elective courses offered by the Inter University Centre for IPR Studies with a CGPA of 7 points (C grade 60%). Candidates are allowed to substitute the elective courses by equivalent courses from the Centre or other Departments/Schools/Centers.

(3) The candidate is, however, permitted to take courses up to a maximum of 240 credits during the total period of 5 years-not exceeding 24 credits per semester – offered from the Inter University Centre for IPR Studies or other Schools/Departments/Centres.

(4) The candidate who has obtained a CGPA of 7 points (C grade 60%) in the courses he/she has registered in the first four semesters in the first attempt and obtained at least a D Grade in all the courses shall be awarded a MIP or LL.M (IPR) Degree as the case may be, and shall be eligible to continue with the study of the integrated MIP, Ph.D or LL.M (IPR), Ph.D Degree as the case may be. Such candidate shall also be needed to comply with the provisions of Ph.D Regulation of CUSAT applicable from time to time and are exempted from DAT.

(5) Those candidates who fail to obtain the required CGPA as mentioned (4) above but obtained at least a D Grade in all the courses offered in the four semesters shall be awarded MIP or LL.M (IPR) Degree as the case may be. In case of failure to secure a D Grade he/she is entitled for two chances to repeat the course during the period of two years after the completion of four semesters.

(6) The candidate who has obtained at least a D Grade in all the courses he/she has registered during ten semesters alone will be eligible for the award of MIP, Ph.D or LL.M (IPR), Ph.D as the case may be. In case of failure to secure a D Grade he/she is entitled for two chances to repeat the course during the period of two years after the completion of the course.

3. *Duration and contents of the course:*—(1) The five year integrated course for the MIP, Ph.D and LL.M (IPR), Ph.D Degree of the University is for a minimum of five academic years consisting of ten semesters. Each semester will be of 16 to 18 weeks of teaching followed by University Examination. The candidates may take more time in the tenth semester for the submission of the thesis and completion of the course. However, the candidate shall complete the course within a maximum period of seven years.

(2) A candidate shall, in the course of ten semesters, undergo instruction in Core and Elective Courses consisting of 168 credits as follows:

Semester	Title of the Course	Nature of the Courses	Credits
First	1. The Concept Law and Justice	Core	4
	2. Foundation Course – I on IPR	Core	4
	3. Seminar Course – I	Core	4
	4. Elective – I	Elective	4
Second	1. Law and Social Change	Core	4
	2. Foundation Course – II on IPR	Core	4
	3. Seminar Course – II	Core	4
	4. Elective – II	Elective	4
Third	1. Research Methodology	Core	4
	2. Course work on IPR – I	Core	8
	3. Elective – III	Elective	4
	4. Elective – IV	Elective	4
Fourth	1. Course work on IPR – II	Core	8
	2. Course work on IPR – III	Core	8
	3. Elective – V	Elective	4(72)
Fifth	1. Course work on IPR – IV	Core	8
	2. Course work on IPR – V	Core	8
	3. Thesis work with evaluation at the end		
Sixth	1. Course work on IPR – VI	Core	8
	2. Course work on IPR – VII	Core	8
	3. Thesis work with evaluation at the end		
Seventh	1. Course work on IPR – VIII	Core	8
	2. Course work on IPR – IX	Core	8
	3. Thesis work with evaluation at the end		
Eighth	1. Course work on IPR – X	Core	8
	2. Course work on IPR – XI	Core	8
	3. Thesis work with evaluation at the end		
Ninth & Tenth	Thesis on IPR	Core	32
	(Pre-submission seminar, followed by a Viva voce at the end of the 9th/10th Semester)		
	Total		**168**

Explanation:

Course work on IPR

(a) The course work on IPR is organized based on the preparation of the required number of research papers and presentation of seminars with the help of teachers identified for this purpose by the Faculty Council of the Centre.

(b) The Faculty Council shall constitute a committee of two teachers (one as supervising teacher) for every candidate from the third semester.

(c) The candidate shall identify one topic for each course from the tentative list of areas for course work identified in the syllabus and further expanded by the Faculty Council of the Centre from time to time in the beginning of the semester in consultation with the supervising teacher assigned to him by the Faculty Council.

(d) Generally a teacher may not be allowed to supervise more than five candidates for course work. However the Faculty Council may, if the situation so demands, permit a teacher to supervise more than five candidates but in no case shall he/she be permitted to supervise more than eight candidates.

(e) The teachers entrusted with the responsibility of course work shall help the candidate in identifying, analyzing and presenting the problem in the research paper. The teacher's input should be equivalent to the work he might otherwise put in teaching the two courses with 4 credits each and he/she should make sure that the final paper is of publishable quality.

(f) Unless and until the Supervising teacher approves the research paper the candidate shall not be permitted to submit the research paper for evaluation and presentation of a seminar before the Committee appointed by the Faculty Council as per clause (b) above.

(g) The approved research paper shall be submitted to the Centre 15 days before the completion of the Semester and the seminar shall be organized before the end of the Semester.

4. *Examinations:—*

(1) The evaluation of all the courses other than thesis is internal by the teacher/s offering the courses.

(2) The evaluation for the core/elective papers are based on an overall assessment of the performance of the candidate during the semester. This is as follows:

(i)	Presentation of class assignment	10 marks
(ii)	Participation in the class	5 marks
(iii)	Written assignment	15 marks
(iv)	Mid term written examination	30 marks
(v)	End term written examination	40 marks

(3) The evaluation of seminar course is based on the participation, presentation and written submission of the candidate on current topics discussed in the weekly seminars organized by the Centre.

(4) The course work consists of 150 marks for written research paper and 50 marks for the seminar presentation. The research paper and the presentation of the seminar shall be evaluated by the Committee members independently and the average shall be taken as the final grade of the candidate for that particular course.

(5) The teacher shall publish all the marks within 10 working days of conducting the evaluation and also provide the copy of the written papers with the marks awarded, if so requested by the candidate within one month of the publication of the result.

Explanation:—

(1) The identification of the topic for writing research paper for course work is done by the candidates in consultation with the supervising teacher. But the collection and collation of the material have necessarily to be undertaken by the candidate as per the scheme of his/her programme. The organisation of the material and the orderly discussion with appropriate references and suggestions for improvements are to be done by the candidate himself/herself. The research methodology, generally speaking, is to be determined in consultation with the supervising teacher. The idea is to make him/her capable of researching and writing a paper on any subject of importance in his/her professional life. In view of the above the candidates' performance may be evaluated in the following method:

	Total marks allotted to research paper	:	150
(a)	Importance and relevance of the topic	:	5
(b)	Adequacy of material	:	40
(c)	Organization of the material in the thesis	:	25
(d)	Language and style	:	25
(e)	Suggestions	:	30
(f)	Punctuation and footnoting	:	25

Though this is generally stated an examiner who is impressed by the general get up of the work may have freedom to make necessary adjustments in marking for the above ingredients. The idea is not at all to restrict the freedom of the examiner. This structuring is resorted to help the examiner decide the publishability of the research paper.

(2) The purpose of presentation of the paper is to make sure that the candidate has done the work independently. This is to evaluate the ability of the candidate to communicate and answer questions. The idea is to develop the necessary communication skills that are necessary for his/her professional life.

In view of the above, the candidates' performance may be evaluated in the following method:

	Total Marks for the presentation	:	50 marks
(i)	Content of the presentation	:	20 marks
(ii)	Organization and presentation	:	10 marks
(iii)	Language and style	:	5 marks
(iv)	Answering questions	:	10 marks
(v)	Overall impression	:	5 marks

5. Thesis Work:—

The candidate shall follow all the procedure mentioned for the course work including the presentation before the final thesis is submitted for evaluation. The candidate may take more than a semester for the purpose of completion of the thesis. The thesis shall be evaluated by three external experts in the field. The external experts shall be identified by the Vice Chancellor from the panel of experts submitted by the Director of IUCIPRS in consultation with the Supervising Committee. The candidate shall secure at least a D grade from at least two examiners for the successful completion of the course. In case he fails to get the D grade he shall resubmit the thesis for fresh evaluation after carrying out the suggestions given by the examiners within a maximum period of seven years from the date of commencement of the course.

6. Classification:—

The following Grades will be awarded based on the overall performance in each course.

Range of marks	*Grade*	*Weightage*
90%	S - Outstanding	10
80 — 90 %	A - Excellent	9
70 — 80 %	B - Very Good	8
60 — 70 %	C - Good	7
50 — 60 %	D - Satisfactory	6
50%	F - Failed	0

Overall performance at the end of the semester will be indicated by Grade Point Average (GPA) calculated as follows:

$$GPA = \frac{GICI + G2C2 + G3C3 + \dots\dots\dots\dots\dots GnCn}{C1+C2+C3+\dots\dots\dots\dots\dots Cn}$$

Where 'G' refers to the Grade weightage and 'C' refers to the credit value of corresponding course undergone by the candidate.

7. *Publication of Research Papers:—*

The candidate shall publish at least two research papers during the course of his study of which one could be in any academic journal published by the Cochin University of Science and Technology and others in journals identified by the Faculty Council for this purpose:

8. *Grievance Committee:—*

(1) In case any candidate is not satisfied with the evaluation of the written part of any course offered by the teacher he shall, within 10 working days of publication of the result, make a written request to the Director of the Inter University Centre for IPR Studies to review the result.

(2) The Director, within two working days, shall place the matter before the Faculty Council and the Faculty Council, if satisfied by the request of the candidate, shall constitute a Grievance Committee of three teachers other than the teacher/s who offered the course to look into the grievance.

(3) The Grievance Committee, within seven working days, after giving opportunity to the candidate and the teacher/s who offered the course, shall take a final decision. If the Committee is satisfied with the grievance of the candidate the Committee shall recommend to the Vice-Chancellor of CUSAT to send the written papers to one of the three experts in the field, identified by the Committee from the list of five experts given by teacher who offered the course. In case the teacher fails to give the list, the experts shall be identified by the Grievance Committee.

(4) In case there is a difference of more than 15% of marks in the evaluation of the expert, the candidate shall be awarded the marks given by the expert and the results revised accordingly.

9. *Revision of Regulations and Curriculum—*

The University may from time to time revise, amend or change the Regulations, scheme of Examinations and the syllabus. In the case of candidates already undergoing the course the changes will take effect from the beginning of the following academic year after the changes are introduced, and shall cover the part of the course that remains to be completed.

REGULATION FOR THE FIVE YEAR B. B. A., LL. B. (HONOURS) COURSE

(As approved by the Board of Studies and Faculty of Law held on 17-11-2012 and Academic Council held on 22-11-2012)

1. The Bachelor's Degree in Business Administration (B.B.A.) and Law (LL.B.) (Honours) shall consist of regular course of study for a minimum period of 10 semesters in five years after plus two.
2. The course of study shall be by regular attendance at the requisite number of lectures, tutorials and practical training.
3. The medium of instruction shall be English.
4. Number of seats: Number of students to be admitted each year shall be decided and notified

   by the University from time to time.

Eligibility

5. *Minimum qualification for admission*: A candidate who seeks admission to the course shall have passed plus two examination with the prescribed percentage of marks (including languages) at the time of admission. The candidate should have secured a minimum of sixty percent marks for the plus two examinations if he/she pursued science group. The candidates who are from the commerce/arts/humanities stream shall have a minimum of fifty-five percentage of marks for the plus two examinations. Candidates belonging to SC or ST communities or belonging to OEC communities with a pass in the plus two examinations with 40 percent marks are entitled to seek admission.
6. Candidates should not have crossed 20 years of age on July 1st of the year of admission (22 years in case of SC/ST and OBC).

Procedure for selection

7. Admission to the course shall be made from the rank list prepared by the University on the basis of score obtained by the candidate in the Common Admission Test conducted by the university annually.

8. In making selection for admission, the pattern of reservation prescribed by the University shall be followed.

Fee structure

9. A student shall pay the fees prescribed by the University from time to time.

Curriculum

10. The B.B.A., LL.B. (Hons.) curriculum shall consist of 20 compulsory courses in Business Management, 26 compulsory and 14 elective courses in Law. Six of the elective courses shall be chosen and offered by the Law School from among the General Elective Courses. The other eight elective courses shall be chosen either wholly from a particular group or from various groups shown as Special Elective Groups viz., Constitutional Law, Business Law, Law and Agriculture, Intellectual Property Law and such other groups introduced by the University/Bar Council from time to time depending upon the availability of infrastructural facilities. However, if the Special Elective Courses are chosen entirely from one special group the student shall be awarded an Honours degree specifically mentioning the group.

(For example,. if all the 8 special electives are from Business Law Group, the student shall be given a B.B.A., LL.B. (Honours) Degree in Business Law.)

A.   Compulsory Courses in Law are:

1. Jurisprudence (Legal Method, Indian Legal System and Basic Theory of Law)

2. General Principles of Contract (Law of Contract – I)

3. Special Contracts (Law of Contract – II)

4. Law of Torts and Motor Vehicles Accidents

5. Consumer Protection Law

6. Family Law – I

7. Family Law – II

8. Law of Crimes-I

9. Law of Crimes-II

10. Law of Criminal Procedure

11. Constitutional Law – I

12. Constitutional Law – II

13. Property Law

14. Law of Evidence

15. Civil Procedure Code and Limitation Act

16. Administrative Law

17. Company Law

18. Public International Law

19. Principles of Taxation Law

20. Environmental Law

21. Labour Law – I (Trade Unions and Industrial Disputes)

22. Labour Law – II (Social Securities Law)

B. Compulsory Clinical Courses in Law

23. Drafting, Pleading and Conveyance

24. Professional Ethics and Professional Accounting System

25. Alternative Dispute Resolution

26. Moot Court Exercise and Internship

C. **Compulsory Courses in Management:**

1. Business Organisation and Management
2. Managerial Economics
3. Business Statistics
4. Business Environment
5. Business Communication
6. Financial Accounting
7. Cost Accounting
8. Adverting and Publicity Management**
9. Modern Banking
10. Financial Management
11. Marketing Management
12. Human Resource Management
13. Business Ethics **
14. Information Technology for Managers
15. Industrial Relations**
16. Management Project**
17. Operations Management**
18. Organizational Dynamics**
19. General English-1
20. General English–II

D. **General Elective Courses in Law:**

1. International Trade Law
2. Criminology, Penology and Victimology
3. Air and Space Law
4. Law and Medicine
5. Women and Law
6. Law Relating to Child
7. Law, Poverty and Development
8. Interpretation of Statutes
9. Science, Technology and Law
10. Forensic Science and Medical Jurisprudence
11. Private International Law
12. Land Utilization Law
13. International Humanitarian and Refugee Law
14. Law of the Sea
15. Laws Relating to Armed Forces
16. Laws Relating to Agriculture
17. Law of Local Self Government
18. Disability Law

19. Law Governing Scientific Research

20. Law Relating to Ships

21. Law on Building and Engineering Contracts

22. Securities Laws

23. Marine Safety Law

24. Healthcare Law

25. Law of Co-operative Societies

26. Disaster Management Law

27. Intellectual Property Laws

E. Special Elective Courses in Business Law

1. Banking Law

2. Insurance Law

3. Law of Carriages

4. Foreign Trade Law

5. Bankruptcy and Insolvency Law

6. Law of Corporate Governance

7. Law of Merger and Acquisition

8. Competition Law

9. Information Technology Law

10. Law on Corporate Finance

Teaching Scheme

11. Every teacher shall prepare a teaching plan at the commencement of the course. The teaching plan shall contain the details of lectures, seminars, discussions, treatises and other materials relied upon by him or her for handling the classes which shall be participatory. Discussion methods of teaching will be adopted.

Examination

12. There shall be a University examination at the end of each semester. Candidates having not less than 80% attendance in each paper shall alone be admitted to the examination. 10% of the required percentage of attendance in each paper may be condoned by the Vice Chancellor on medical grounds.

13. For each written paper carrying 100 marks, 50% shall be set apart for being awarded by way of internal assessment and 50% marks for the written external examination. Internal assessment shall be made on the basis of overall performance during the semester such as regularity of attendance, preparation and presentation of assignments, test paper scoring and class room participation.

14. The performance in practical training papers shall be assessed internally.

15. A candidate who is registered and is entitled to be presented for the examination in a semester shall be entitled to pursue the studies for the next semester of the course.

16. There shall be a viva-voce at the end of tenth semester examination which may cover all the courses taught for the whole programme. The viva board shall consist of the Chairman and two examiners, at least one of whom shall be an external examiner.

17. A candidate admitted for this course shall complete the programme within a period of eight years from the date of admission.

Pass minimum and classification

18. A candidate who secures not less than forty percentage in the internal as well as external examinations and also secure and aggregate of fifty percent of the total marks for individual papers in the semester examination shall be declared to have passed the examination in that paper.

19. A candidate who passes in all the papers and secures 50% or more of the aggregate marks for all the ten semesters but less than 60% shall be declared to have passed whole examination in second class.

20. Successful candidates with 60% marks and above in the aggregate for all the ten semesters shall be declared to have passed the whole examination in first class.

21. Successful candidates with seventy-five percentage marks or above in the aggregate for all the ten semesters shall be declared to have passed the examination with distinction provided he/she passes all the examinations within the period of whole programme. Ranking shall be done on the basis of marks obtained by the candidate in the whole examination passed in the first chance.

Scheme of Examination

Code	Name of Paper	Duration of Examination	Marks		Total
			Internal	External	
(1)	(2)	(3)	(4)	(5)	(6)
First Semester					
C.M.1	General English -1	3 hours	50	50	100
C.M.2	Business Organisation and Management	3 hours	50	50	100
C.M.3	Managerial Economics	3 hours	50	50	100
C.M.4	Business Statistics	3 hours	50	50	100
C.L.1	Law of Torts and Motor Vehicles Accidents	3 hours	50	50	100
C.L.2	General Principles of Contract	3 hours	50	50	100
		Total	**300**	**300**	**600**
Second Semester					
C.M.5	General English-II	3 hours	50	50	100
C.M.6	Business Environment	3 hours	50	50	100
C.M.7	Business Communication	3 hours	50	50	100
C.M.8	Financial Accounting	3 hours	50	50	100
C.L.3	Special Contracts	3 hours	50	50	100
C.L.4	Constitutional Law-I	3 hours	50	50	100
		Total	**300**	**300**	**600**
Third Semester					
C.M.9	Cost Accounting	3 hours	50	50	100
C.M.10	**Advertising and Publicity Management	3 hours	50	50	100
C.M.11	Modern Banking	3 hours	50	50	100
C.L.5	Jurisprudence (Legal Method, Indian Legal System and Basic Theory of Law)	3 hours	50	50	100
C.L.6	Constitutional Law-II	3 hours	50	50	100
C.L.7	Law of Crimes-I	3 hours	50	50	100
		Total	**300**	**300**	**600**

(1)	(2)	(3)	(4)	(5)	(6)
		Fourth Semester			
C.M.12	Financial Management	3 hours	50	50	100
C.M.13	Marketing Management	3 hours	50	50	100
C.M.14	Human Resources Management	3 hours	50	50	100
C.L.8	Family Law -1	3 hours	50	50	100
C.L.9	Administrative Law	3 hours	50	50	100
C.L.10	Law of Crimes-II	3 hours	50	50	100
		Total	**300**	**300**	**600**
		Fifth Semester			
C.M.15	**Business Ethics	3 hours	50	50	100
C.M.16	Information Technology for Managers	3 hours	50	50	100
C.L.11	Law of Criminal Procedure	3 hours	50	50	100
C.L.12	Family Law -II	3 hours	50	50	100
C.L.13	Consumer Protection Law	3 hours	50	50	100
C.L.14	Law of Evidence	3 hours	50	50	100
		Total	**300**	**300**	**600**
		Sixth Semester			
C.M.17	**Industrial Relations	3 hours	50	50	100
C.M.18	**Operations Management	3 hours	50	50	100
C.L.15	Company Law	3 hours	50	50	100
C.L.16	Labour Law-I	3 hours	50	50	100
C.L.17	Civil Procedure Code and Limitation Act	3 hours	50	50	100
C.L.18	Public International Law	3 hours	50	50	100
		Total	**300**	**300**	**600**
		Seventh Semester			
C.M.19	**Management Project		100	—	100
C.L.19	Principles of Taxation Law	3 hours	50	50	100
C.L.20	Labour Law-II	3 hours	50	50	100
C.L.21	Environmental Law	3 hours	50	50	100
C.L.22	Property Law	3 hours	50	50	100
C.C.L.1	Drafting, Pleading and Conveyance		100	**	100
		Total	**350**	**250**	**600**
		Eighth Semester			
G.E.C.1	Elective-1	3 hours	50	50	100
G.E.C.2	Elective-2	3 hours	50	50	100
G.E.C.3	Elective-3	3 hours	50	50	100
G.E.C.4	Elective-4	3 hours	50	50	100
C.M.20	**Organisational Dynamics	3 hours	50	50	100
C.C.L.2	Professional Ethics and Professional Accounting System		100	—	100
		Total	**400**	**200**	**600**

(1)	(2)	(3)	(4)	(5)	(6)
		Ninth Semester			
G.E.C.5	Elective-5	3 hours	50	50	100
G.E.C.6	Elective-6	3 hours	50	50	100
S.E.C. 1	Special Elective-1	3 hours	50	50	100
S.E.C. 2	Special Elective-2	3 hours	50	50	100
S.E.C. 3	Special Elective-3	3 hours	50	50	100
C.C.L.3	Alternative Dispute Resolution		100	—	100
		Total	**350**	**250**	**600**
		Tenth Semester			
S.E.C. 4	Special Elective-4	3 hours	50	50	100
S.E.C. 5	Special Elective-5	3 hours	50	50	100
S.E.C. 6	Special Elective-6	3 hours	50	50	100
S.E.C. 7	Special Elective-7	3 hours	50	50	100
S.E.C. 8	Special Elective-8	3 hours	50	50	100
C.C.L.4	Moot Court Exercise and Internship		100	—	100
V. V.	Viva-Voce			100	100
		Total	**350**	**350**	**700**

NOTIFICATION

No. Conf. II/2941/3/2012(4).   *20th January 2014.*

Read.—Notificatión No. Conf.II/2941/3/2012(4), dated 4-5-2013.

In exercise of the powers conferred by Section 24(ii) read with Section 42(1) of CUSAT Act 1986, the Academic Council at its meeting held on 22-11-2012 resolved to approve the following:

1. Scheme of Examination for M. Phil Life Science with effect from 2010 and 2011 admissions as in Appendix—I.

2. Scheme of Examination for M.Phil Life Science with effect from 2012 admission with following modifications as in a Appendix—II.

   (i)   In the course structure, MB 4102 be changed from core to Elective

   (ii) Course Code MB 4103 be renamed as SIF 4109

   (iii) Under eligibility for admission the term (etc.) towards the end be deleted which would now read as

   "Pass in Master's Degree Examination in any branch of Life Sciences (Aquatic Biology and Fisheries, Biochemistry, Biotechnology, Botany, Fishery Science, Marine Biology, Microbiology and Zoology)".

3. Rename Board of Studies in Marine Geology as Board of Studies in Marine Geology and Marine Geophysics.

The Syndicate at its meeting held on 19-11-2013 vide item No. 605.50 resolved to ratify the action taken by the Vice-Chancellor in having above the above.

Cochin University P. O.,   (Sd.)
Kochi-22.   *Professor-in-charge of Registrar.*

DEPARTMENT OF MARINE BIOLOGY, MICROBIOLOGY AND BIOCHEMISTRY

M. Phil (Life Sciences) Course w.e. f. 2010 and 2011 Admissions

Department—Dept. of Marine Biology, Microbiology and Biochemistry.

Regulations—As prescribed by the Cochin University of Science and Technology

Scheme of Exam—   ,,   ,,   ,,   ,,   ,,   ,,

Eligibility for Admission—Pass in Master's Degree examination in any branch of life sciences (Aquatic Biology and Fisheries, Biochemistry, Biotechnology, Botany, Fishery Science, Marine Biology, Microbiology and Zoology)

Number of seats—Six

Duration—Two Semesters.......(One Academic Year)

M. Phil Life Sciences—Course Structure w.e.f. 2010 and 2011 Admissions

Course Code	Core/Elective	Subject	Credits	Continuous Evaluation Marks	End Semester Examination Marks	Total
I SEMESTER						
MB4101	Core	Biochemistry & Physiology	5	60	40	100
MB4102	Core	Microbiology & Molecular Biology	5	60	40	100
MB4103	Core	Research Methodology & Quantitative Techniques	5	60	40	100
MB4104	Core	Literature Review and Seminar	3	100	-	100
		Total for I Semester	**18**	**280**	**120**	**400**
II SEMESTER						
MB4201	Core	Project Evaluation and Viva-Voce	18	100	300*	400
		Total for the Course	**36**	**380**	**420**	**800**

*Note.—Out of the 300 marks, 200 shall be for the evaluation of Dissertation and 100 marks shall be for Viva-Voce-Examination. Both these evaluations shall be done by the Internal and External examiners.

M. Phil. Life Sciences—Course Structure w.e.f. 2012 Admissions

Course Code	Core/Elective	Subject	Credits	Continuous Evaluation Marks	End Semester Examination Marks	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
I SEMESTER						
MB4101	Core	Biochemistry & Physiology	5	60	40	100
MB4102	Elective	Microbiology & Molecular Biology	5	60	40	100
SIF4109	Core	Research Methodology & Quantitative Techniques	5	60	40	100
MB4104	Core	Literature Review and Seminar	3	100	-	100
		Total for I Semester	**18**	**280**	**120**	**400**

(1)	(2)	(3)	(4)	(5)	(6)	(7)

II SEMESTER

MB4201	Core	Project Evaluation and Viva-Voce	18	100	300*	400
		Total for the Course	**36**	**380**	**420**	**800**

Note.—Out of the 300 marks, 200 shall be for the evaluation of Dissertation and 100 marks shall be for Viva-Voce-Examination. Both these evaluations shall be done by the internal and external examiners.

NOTIFICATION

No. Conf. II/2941/3/2012(5).   *20th January 2014.*

Read.—Notificatión No. Conf.II/2941/3/2012(5) dated 4-5-2013.

In exercise of the powers conferred by section 24(ii) read with section 42(1) of CUSAT Act 1986, the Academic Council at its meeting held on 22-11-2012 resolved to approve the Regulation and scheme of Examination for B. Tech Marine Engineering as in appendix; with effect from 22-11-2012, the date of meeting of the Academic Council.

The Syndicate at its meeting held on 19-11-2013 vide item No. 605.50 resolved to ratify the above action taken by the Vice-Chancellor in having approved the above.

Cochin University P.O.,   (Sd.)
Kochi-22.   *Professor-in-charge of Registrar.*

Regulations for B.Tech Marine Engineering Degree Course offered in Kunjalimarakkar School of Marine Engineering

The following regulations are made applicable to the B.Tech Marine Engineering programme offered by Kunjali Marakkar School of Marine Engineering with effect from the academic year 2012-2013.

1. *Admission to the course:*

   1.1 The candidate shall have passed the Higher Secondary (10+2) examinations conducted by the Board of Higher Secondary Examination, Govt.of Kerala or Examination of any other University/Board, with Mathematics, Physics and Chemistry as subjects or any other examination accepted as equivalent thereto by the Cochin University of Science and Technology (CUSAT).

   1.2 The candidate shall have secured a minimum of 50% marks for mathematics, 60% marks for Mathematics, Physics and Chemistry put together in Higher Secondary Examination and a minimum of 50% marks in English either in 10th standard or in 12th.

   1.3 The candidates shall also satisfy the conditions regarding Age and Physical fitness as may be prescribed by University and Director General of Shipping.

   1.4 The admission to the course shall be through the Common Admission Test conducted by the University.

2. *Duration of the course:*

   2.1 The duration of the B.Tech course in the University shall be eight semesters spanning over four academic years.

   2.2 The first two semesters will be combined together as first year, and the remaining three years shall be split into 6 semesters.

   2.3 The teaching programme for each semester shall consist of 17 weeks and that for the first year will consist of 34 weeks.

   2.4 Out of the 8 semesters, the 7th semester shall be allotted for "Ship-in-Campus Training" and assessment of the training is done separately.

   2.5 Examinations will be conducted at the end of the year/semester in subjects prescribed in the respective scheme of examinations.

3. *Structure of the B. Tech. programme:*

3.1 The programme of instruction will consist of the following:

(i) a General (common) core programme comprising basic sciences, engineering sciences, technical arts and mathematics;

(ii) an Engineering core programme introducing the student to the foundations of marine engineering;

(iii) an Elective programme enabling the student to opt and undergo a set of courses of interest to him/her;

(iv) Professional practice including project, seminar and high-tech labs consisting of control systems, full mission engine room simulator, ship-in-campus and visits to shipyards etc.

(v) Courses on Communication Skills, Environmental Studies and Professional Ethics.

3.2 The B. Tech. programme will have a curriculum and syllabi for the courses approved by the Academic Council of the University and Director General of Shipping.

3.3 The Course of study shall follow credit system and will be in accordance with the scheme, course content and syllabus prescribed. The total credit for the entire course shall be 200.

4. *Eligibility for the degree:*

4.1 No candidate shall be eligible for the B.Tech Degree in Marine Engineering unless he/she has undergone the prescribed course of study for a period not less than 4 academic years from the date of admission to the first semester and has passed the prescribed examinations in all the semesters.

4.2 The candidate shall complete all requirements for the degree within a period of 8 academic years from the date of admission to the first year.

5. *Mode of Evaluation:*

5.1 The performance of the students will be evaluated based on continuous assessment and university examination. For theory courses, the continuous assessment and university examination will carry a maximum of 50 marks and 100 marks respectively. For practical courses, the continuous assessment and end semester examination will carry 50 per cent weightage each.

5.1.1 *Continuous Assessment:*—All sessional works shall be valued and marks shall be awarded on the basis of day-to-day work, periodic tests and regular assignments based on the scheme of evaluation as decided by the School Council.

The total sessional marks for theory and laboratory courses shall be made up of 50% for internal tests (minimum two tests), 40% for assignments/quizzes/seminars and 10% for attendance. However the teachers, depending upon the specific requirements of the subjects, can make changes in the distribution with the permission of the Director of the School.

Marks for attendance shall be awarded as follows:

% of attendance	marks awarded
96-100	5
91 -95	4
86-90	3
81 -85	2
75-80	1
below 75	0

5.1.2 A candidate shall be allowed to improve the continuous assessment marks in theory/laboratory courses subject to the following conditions:

(a) During his/her regular course work of any semester, improvement of continuous assessment marks of any previous semesters will not be permitted.

(b) He/she shall repeat the theory/practical course only once and shall satisfy the minimum attendance requirement of 75 per cent while repeating the course.

(c) He/she shall not be allowed to repeat the course work of any semester if he/she has already secured a minimum of 60 per cent marks for continuous assessment.

(d) He/she shall not be allowed to repeat the course work of any subject of any semester of which he/she has already passed the semester examination in full.

5.2. *University Examination:-* There shall be University Examination at the end of every semester in the subjects as prescribed under the scheme of examination.

5.3. To pass in a subject, a candidate has to score not less than 45% of the marks in the University examination and not less than 50% aggregate marks in the University examination and sessional marks, put together.

5.4. In subjects where there are no University examinations, a candidate has to score not less than 50% marks for a pass in that subject. In the case of Laboratory courses, the candidate shall obtain a minimum of 50 percent marks for continuous assessment and end semester examination put together with a minimum of 50 percent marks for the end semester examination. Those who fail in the laboratory course shall appear in the end semester examination in the next available chance.

5.5. The question paper for the University Examination will be set by an external examiner. The controller of examinations will make necessary arrangements for setting the question papers and valuation of answer books for the University Examination.

5.6. The continuous assessment in laboratory course will be based on supervision of the student's work, their performance in viva-voce examinations and the quality of their work. The end semester examination for the laboratory courses shall be conducted internally with at least two faculty members as examiners.

5.7. In the case of project work, a committee consisting of the Project Coordinator (appointed by the Director of the School), project guide and at least one senior faculty member will carry out the assessment based on at least two interim reviews and a final review just before the submission of the project report.

5.8. The Viva-voce examination at the end of VIII Semester will be conducted by a panel of examiners consisting of the Director of the School or his/her nominee and one senior faculty of the School and one external expert.

6. *Promotion to Higher Semesters*

6.1. The candidate shall be eligible for promotion from one semester to the next semester only if:

(a) he/she has secured a minimum of 75 % attendance,

(b) he/she has registered for the University examination, and

(c) his/her progress and conduct have been satisfactory.

7. *Attendance.*

The rules followed for B.Tech Courses of CUSAT and D.G. Shipping will be applicable.

7.1. The percentage of attendance of a candidate for a semester shall be indicated by a letter code as given below.

Attendance	Letter Code
90% and above	H
75% and above but less than 90%	N
Less than 75%	L

7.2. A student whose attendance is less than 75% for a semester is not eligible to appear for the University Examination.

7.3. The Vice-Chancellor shall have the power to condone shortage of attendance up to 5 percent on medical grounds on the recommendations of the Head of Department. However such condonation for shortage of attendance shall be given only twice during the entire course.

8. *Grading*

8.1. Grades shall be awarded to the students in each course based on the total marks obtained in continuous assessment and the end semester examination. The grading pattern shall be as follows:

Marks obtained (Percentage)	Grade	Grade points
90-100	S	10
80-89	A	9
70-79	B	8
60-69	C	7
50-59	D	6
< 50	F	0

Decimal percentages shall be rounded to the next higher number if it is greater than or equal to 0.5.

8.2. A student is considered to have credited a course or earned credits in respect of a course if he/she secures a grade other than F for that course.

8.3. Grade Point Average.

The academic performance of a student in a semester is indicated by the Semester Grade Point Average (SGPA).

$$SGPA = G1C1 + \frac{G2C2 + G3C3 + \text{--------------}GnCn}{C1 + C2 + C3 + \text{--------------}Cn}$$

Where 'G' refers to the grade point and 'C' refers to the credit value of corresponding course undergone by the student.

8.4. Grade Card

The Grade Card issued at the end of the semester to each student by the Controller of Examinations, will contain the following:

    (a)   the code, title, number of credits of each course registered in the semester,

    (b)   the letter grade obtained,

    (c)   the attendance code,

    (d)   the total number of credits earned by the student upto the end of that semester and

    (e)   SGPA & CGPA.

8.5. Classification based on CGPA is as follows:

    CGPA 8 and above : First Class with Distinction

    CGPA 6.5 and above, but less than 8 : First Class

    CGPA 6 and above, but less than 6.5 : Second Class.

B.TECH. DEGREE COURSE IN MARINE ENGINEERING

Scheme of Examinations (2012 Admissions)

Course No.	Subject	Hours per week				Max. Marks		Total
		L	T	P	C	Internal	University	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Combined I & II Semesters								
MRE 101	Engineering Mathematics-I	2			3	50	100	150
MRE 102	Engineering Mathematics-II	2			3	50	100	150
MRE 103	Engineering Physics	2			3	50	100	150
MRE 104	Engineering Chemistry	2			3	50	100	150
MRE 105	Engineering Mechanics	3	1		4	50	100	150
MRE 106	Engineering Graphics	1		3	4	50	100	150
MRE 107	Fundamentals of Engineering-I	4			4	50	100	150
MRE 108	Fundamentals of Engineering- II	4			4	50	100	150
MRE 109	Computer Fundamentals	3			3	50	100	150
MRE 110	Environmental Studies and Technical Communication	2*		1	3	50	100	150
MRE 111	Computer Programming Lab			2	2	100	..	100
MRE 112	Workshop Practices (Electrical and Mechanical)-I			4	4	100	..	100
MRE 113	Language Laboratory			1	1	100	..	100
	Total	**25**	**1**	**10**	**41**			

* 1 hour/week each for Environmental Studies and Technical Communication.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		Semester III						
MRE 301	Engineering Mathematics - III	3	1		3	50	100	150
MRE 302	Electrical Technology	5	1		4	50	100	150
MRE 303	Workshop Technology	4			3	50	100	150
MRE 304	Mechanics of Solids	4	1		3	50	100	150
MRE 305	Fluid Mechanics and Machinery	4	1		4	50	100	150
MRE 306	Machine Drawing	1		4	3	50	100	150
MRE 307	Fluid Mechanics and Machinery Lab			3	2	100	-	100
MRE 308	Material Testing Lab			2	2	100	-	100
MRE 309	Workshop Practices -II			2	2	100	-	100
	Total	**21**	**4**	**11**	**26**			
		Semester IV						
MRE 401	Mechanics of Machinery	4	1		3	50	100	150
MRE 402	Thermodynamics and Heat Transfer	4	1		3	50	100	150
MRE 403	Metallurgy and Material Science	5			4	50	100	150
MRE 404	Marine Electronics	4			3	50	100	150
MRE 405	Marine Auxiliary Machinery - I	5			4	50	100	150
MRE 406	Seamanship and Navigation	3			3	50	100	150
MRE 407	Ship Technology	4			3	50	100	150
MRE 408	Electrical Machines Lab			3	2	100	-	100
MRE 409	Electronics Laboratory			3	2	100	-	100
	Total	**29**	**2**	**6**	**27**			
		Semester V						
MRE 501	Dynamics of Machinery	3	1		3	50	100	150
MRE 502	Marine Boiler and Steam Engineering	4	1		3	50	100	150
MRE 503	Maritime Economics and Commercial Geography	3			3	50	100	150
MRE 504	Marine Internal Combustion Engines - I	4			4	50	100	150
MRE 505	Marine Auxiliary Machinery - II	5			4	50	100	150
MRE 506	Marine Engineering Drawing	1		3	3	50	100	150
MRE 507	Naval Architecture - I	4			3	50	100	150
MRE 508	Boiler Chemistry & Heat Engines Lab			3	2	100	-	100
MRE 509	Work shop Practices -III			4	2	100	-	100
	Total	**24**	**2**	**10**	**27**			

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Semester VI							
MRE 601	Management Science	4			3	50	100	150
MRE 602	Marine Electrical Technology	4	1		4	50	100	150
MRE 603	Ship Fire Prevention and Control	4			3	50	100	150
MRE 604	Marine Internal Combustion Engines - II	4			4	50	100	150
MRE 605	Marine Refrigeration and Air Conditioning	4	1		3	50	100	150
MRE 606	Machine Design and Drawing	3	1		3	50	100	150
MRE 607	Naval Architecture - II	3	1		3	50	100	150
MRE 608	Fire Control Engineering Lab			3	2	100	-	100
MRE 609	Mechanical Lab			3	2	100	-	100
	Total	**26**	**4**	**6**	**27**			
	Semester VII							
MRE 701	Ship in-Campus Training	26 weeks		24	200		200	
	6 months-7 hours per day-6 days per week							
	Semester VIII							
MRE 801	Safe Watch Keeping and Engine Resource Management	4			3	50	100	150
MRE 802	Ship Operation and Management	5			4	50	100	150
MRE 803	Marine Machinery System Design	4			3	50	100	150
MRE 804	Marine Control Engineering and Automation	4	1		3	50	100	150
MRE 805	Maritime Statutory Regulations	4			3	50	100	150
MRE 806	Elective	4			3	50	100	150
MRE 807	Simulators and Control Lab			3	2	100	-	100
MRE 808	Seminar	2			1	100	-	50
MRE 809	Project	1	4		4	150	-	150
MRE 810	Viva-voce				2	-	100	100
	Total	**28**	**5**	**3**	**28**			
	Grand Total				**200**			

Note:—1. In the VII Semester, in addition to the 6 months Ship-in Campus work, all students are given mandatory training in the 4 basic modular courses (Total 12 days -72 hours) as per DGS requirements.

2. Also students are taken onboard vessels of Cochin Port Trust and onboard ships belonging to Lakshadweep Administration (36 hrs. minimum).

3. Evaluation of marks for the VII Semester is done as follows:

Proper maintenance of the work diary and training records	= 50 marks
Theory Examination	= 100 Marks
Viva- Voce	= 50 Marks
Total	**= 200 Marks**

NOTIFICATION

No. Conf. II/2941/3/2012.   *23rd November 2013.*

Read.—Notificatión No. Conf.II/NOT/8/05, dated 18-10-2005.

In exercise of the powers conferred by Section 24(ii) read with Section 42(1) of Cochin University of Science and Technology Act, 1986, the Academic Council at its meeting held on 22-11-2012 resolved to approve the modified regulation for the award of D.Sc./D.Litt. and LL.D. Degrees of Cochin University of Science and Technology (Appendend).

The Syndicate at its meeting held on 24-8-2013 resolved to approve the above regulations, with effect from 24-8-2013.

Cochin University P.O.,   (Sd.)
Kochi-22.   *Registrar.*

REGULATIONS FOR THE AWARD OF D.Sc, D. Litt. AND LL.D DEGREES

1. D.Sc/D.Litt./LL.D degree shall be awarded only for published work of exceptionally high standard containing original contributions to the advancement of knowledge and learning which has given the candidate international recognition and distinction in his/her field of study. The published work shall provide evidence of:

   (a)   a sustained and consistent contribution over a minimum of ten years after obtaining a Ph.D. Degree or an equivalent degree; and

   (b)   a reasonable degree of coherence among the minimum of 20 (twenty) publications submitted for the award of the degree of D.Sc/D.Litt./LL.D, which helps to establish a candidate's distinction in his/her field of study; and

   (c)   the originality of the candidate's contribution to his/her field of study (at least five single authored/first authored International publications) (Referred National Journal publications acceptable in the case of Indian Languages) as publications in refereed journals in the area of specialization (papers published from the Ph.D.thesis will not be counted),

and (d) related publications which have led to extension of work, innovation or development in new directions by others, as assessed through citations (at least ten citations)

2. Conditions for Entry and Award

   2.1   A candidate for the award of a D.Sc/D.Litt/LL.D Degree of Cochin University of Science and Technology must either:

   (a)   have previously obtained a degree through Cochin University of Science and Technology,

OR

   (b)   have not less than Five years' of standing as a regular teacher and research guide at Cochin University of Science and Technology (CUSAT)

OR

   (c)   be a Regular and permanent Scientist working in a recognized Institution of CUSAT, and as a recognized research guide of the University with not less than five years of standing as a research guide,

OR

   (d)   be an outstanding teacher/scientist/technocrat/professional who has made significant contribution quantitatively and qualitatively , and whose submission for the award is unanimously recommended by the concerned Board of studies, Faculty and Deans Committee of the University.

   2.2   No submission for a D.Sc/D.Litt/LL.D Degree will be accepted from a person who is a candidate for the award of a comparable degree from another institution or has been awarded a comparable degree from any other University or Institution for the same work,

   2.3   A candidate who was unsuccessful in getting a D.Sc/D.Litt/ LL.D Degree of Cochin University of Science and Technology for his submission is permitted to submit a second time for the degree of D.Sc/D.Litt/LL.D (a maximum of two attempts only) after a gap of three years,

2.4 No work shall be considered for the award of the Degree if the work, or a major portion thereof, has previously formed the basis for the award of a degree or diploma of this or any other university,

2.5 If a candidate is incorporating in his/her submission parts of work for which a degree or diploma has previously been awarded, any such work must be clearly indicated,

2.6 The term 'published work' means work produced in hard copies as book chapters, books, or Scholarly Journal papers or digital format and traceable through catalogs or bibliographies and available to the general public through normal channels either at the time of application or in the past.

2.7. Unless otherwise decided by the Academic Council on the recommendations of the Deans' Committee, the portion of the work submitted that is deemed by the candidate to be the most important contribution for the award of the degree must have been written in the English Language. If the work is presented in a language other than English, the candidate must supply a certified English translation, except for D.Litt degree.,

2.8 If a candidate submits a joint work, a satisfactory statement must be provided by the candidate explaining in detail the extent to which the candidate has contributed for the initiation, conduct, supervision of the work, and in the preparation and publication of the manuscript, and also explaining the contribution of the co-authors, and endorsed by all the co-authors,

2.9 A candidate is required to provide a write-up in not less than 30 pages highlighting how each of the publications submitted for the award of the degree has contributed significantly to knowledge in the field of study concerned. Only one such statement is required consolidating the entire work presented in all the papers together, and discussing the extension work carried out by others as asked for in 1 (d) above.

2.10 Applications will be accepted only in those subject areas of work where Cochin University of Science and Technology has facilities and expertise for research in Schools/Departments/Centres and recognised for research under an existing Faculty of the University.

3. Entry to Examination

3.1 Candidates shall submit application in the prescribed form obtainable from the University on payment. The completed form must be returned with the prescribed fee together with:

(i) A curriculum vitae

(ii) An electronic version together with a hard copy of the list of publications, in reverse chronological order, which the candidate proposes to submit.

The list must contain :

(a) subject-wise papers in a broad area, if applicable

(b) papers published as continuation of his/her Ph.D. work

(c) details of each published work such as name of the journal, full title of the publication, year of publication, name (s) of all the authors as appeared in the publication, volume number, issue number, if any, page numbers of the publication, and impact factor, if applicable/available. Each published work should come under one of the two sections;

(i) publication (s) in which the candidate is the sole author, and

(ii) multi-authored publications in which the candidate is one of the authors these publications should normally be listed in reverse chronological order but may also be arranged in separate groups if this is more appropriate, in terms of the contents, in which case also the list should be in reverse chronological order in each group,

(iii) an electronic version and a hard copy of the statements required under paragraphs 2.8 (if applicable) and 2.9 above.

(iv) SIX sets (in hard copy, soft bound) of the publications listed are to be submitted. The sets should correspond exactly with the list provided, and arranged in the same order and identically numbered. Each hard copy should include the candidate's curriculum vitae, his/her statement as required under paragraph 2.9 above and the list of publications submitted.

(v) a statutory declaration which shall:

　(i) state the extent to which the work is the original contribution of the candidate and in the case of a joint work, identify as clearly as possible those portions which are the original contribution of the candidate

　　and

　(ii) state which portion (if any) of the work submitted had previously been presented by the co-author(s) for the award of a degree or diploma of any university/ Institute

　　and

　(iii) declare that the work submitted by the candidate in its present form has not been previously presented by him, and accepted for the award of a degree or diploma in this or any other university, and is not being concurrently submitted for a degree or diploma in any other university/Institute.

4. Conduct of Examinations

4.1　The award of the D.Sc/D.Litt/LL.D degree shall be on the basis of the candidate's publications.

4.2.1　The application for the D.Sc/D.Litt/LL.D degree shall initially be scrutinized by the Deans' Committee whose role will encompass 3 stages:—

　(a) Initial vetting of the application to ascertain if it can be processed, and to decide under which Faculty the submission should be considered;

　(b) If the Dean's Committee agrees that the application can further be processed, the Committee shall refer the application to the relevant Faculty Review Panel, and

　(c) Discussion on the comments by the referees and final recommendations to the University on the award of the degree.

4.2.2　There shall be a Faculty Review Panel, which shall consist of the Dean of the Faculty concerned (Convenor), two senior Professors from CUSAT, in the area of work pertaining to the research field of the applicant, nominated by the Vice-Chancellor, and two external experts from the Faculty concerned, nominated by the Vice-Chancellor.

　The quorum for the Meeting shall be three.

4.3　The Faculty Review Panel will select and recommend to the Vice-Chancellor a panel of at least TEN external examiners (preferably at least four of then be from outside the country) to examine the candidate's statement, write-up and publications. The Vice-Chancellor shall select five examiners (at least two of them be from outside the country except when D.Litt for Indian language is the case). The submission along with the Form for Examiner's report shall be sent to all the Five Examiners selected by the Vice-Chancellor and their reports obtained. In case an examiner refuses to take up the work or there is inordinate delay in responding, the Vice-Chancellor shall appoint another examiner from the panel in place of the earlier examiner.

4.4　If the Dean's Committee determines that an application cannot be processed, the same will be intimated to the candidate with reasons, and no further correspondence on this will be entertained.

4.5　HIGH recommendation from at least four of the five external examiners and recommendation from the other examiner OR HIGH recommendation from at least three examiners and positive recommendations from the other two examiners shall be the necessary condition for recommendation by the Dean's Committee for the award.

4.6　If less than three HIGH recommendations are received from the five examiners, award of D.Sc./D.Litt./LL.D. Degree shall not be recommended.

4.7　If clarifications are sought by the examiners the same shall be obtained from the candidate and routed to the examiners through the Faculty review panel. The recommendations obtained from the examiners thereafter shall be considered for finalization on the award of Degree to the candidate. No direct correspondence between the examiner and the candidate shall be permitted.

4.8　The Dean's Committee shall, on receipt of the examiners' report, recommend to the University for the award of D.Sc./D.Litt./LL.D. Degree or recommend to reject the submission.

5. Notification of Results and Award of Degree

5.1　Every candidate will be notified by the University whether or not he/she is to be recommended for the award of the degree on completion of the evaluation process.

5.2　A Certificate under the Seal of the University shall subsequently be delivered to each candidate who has been awarded the D.Sc./D.Litt./LL.D. degree.

5.3 An electronic version of D.Sc./D.Litt/.LL.D. submission accepted for award has to be presented to the Library. The Library will add a digital copy of the D.Sc./D.Litt./LL.D. submission, consisting of the author's review, contents list, and bibliography, to the University's digital repository, where it shall be freely accessible to all. The University Library will also add to their collection a hard copy of the submission for which the D.Sc./D.Litt./LL.D. has been conferred.

6. Appeal Procedure: The candidate has the right to appeal to the Vice-Chancellor of the University if he/she has a genuine grievance with regard to the submission for the award of D.Sc./D.Litt./LL.D. Degree of the University. The Decision of The Vice-Chancellor on the appeal shall be final and binding on the candidate. The candidate shall have no right to appeal against the report of the examiners.

7. Re-entry to Examination: A candidate who fails to qualify for the award of the degree of D.Sc./D.Litt./LL.D. in his/her first attempt may avail of one more chance after a gap of at least three years, and shall then be required, on re-entry as a fresh candidate, to comply with the regulations in force at that time.

8. Transitory Provision

(i) The present regulations shall supersede all earlier regulations on the matter and all fresh registrations of candidates for the degree of D.Sc/D.Litt/LL.D shall be made under these regulations,

(ii) A student registered under the earlier regulations shall be eligible to opt to come under these regulations, but such option shall be exercised within a period of six months from the date of notification of these regulations.

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